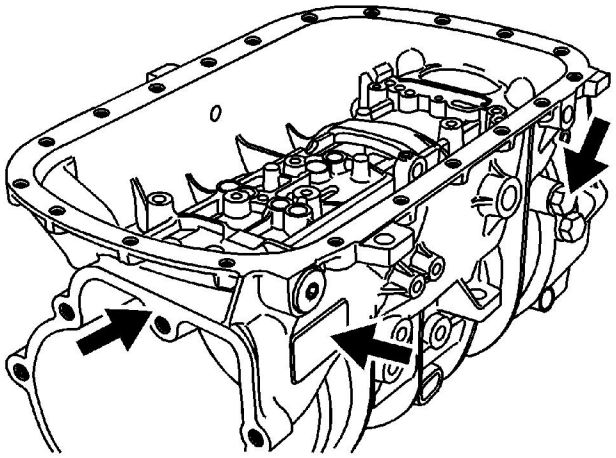
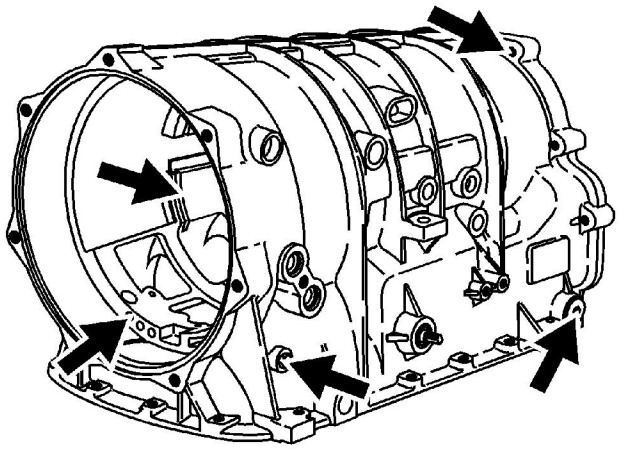
Case Assembly Inspection



1. Inspect the components that are still on the transmission case for the following conditions:
   - Loose, cross-threaded, or damaged threads on the transmission oil cooler fittings
   - A loose, missing, or damaged transmisssion name plate



2. Inspect the transmission case for the following conditions:
   - Gasket sealing surfaces that are damaged or have porosity

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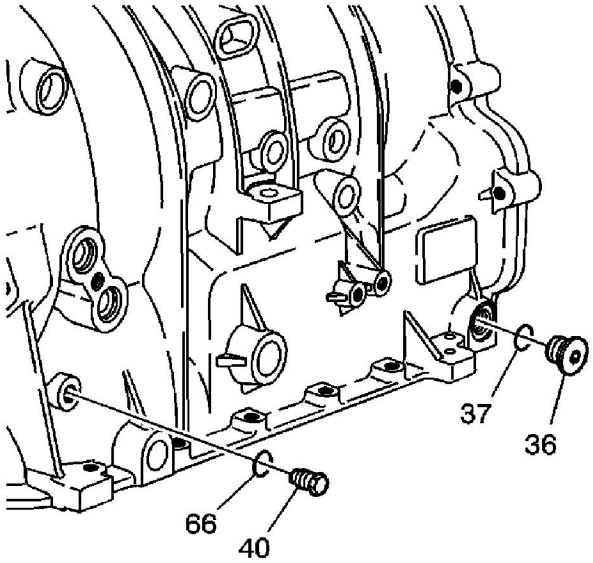
- Bolt and screw holes that are stripped or damaged - repair with thread insert
- Damaged or porous case and fluid passages
- Damaged snap ring grooves or housing splines
- A loose, cross threaded, or damaged pressure test plug and fluid level hole plug

Case Components Assemble

Caution: Refer to Fastener Caution in the Preface section.



Note: If the pressure test plug (40), O-ring (66), level hole plug (36) and O-ring (37) are not damaged, they should be reused.

1. Inspect the pressure test hole plug (40) and O-ring seal (66) for damage.
2. Install the pressure test plug (40) and O-ring seal (66) and tighten to **11N·m (8 lb ft)**.
3. Inspect the fluid level hole plug (36) and O-ring seal (37) for damage.
4. Install the transmission fluid level hole plug O-ring seal (37) and the transmission fluid level hole plug (36) and tighten to **20N·m (15 lb ft)**.

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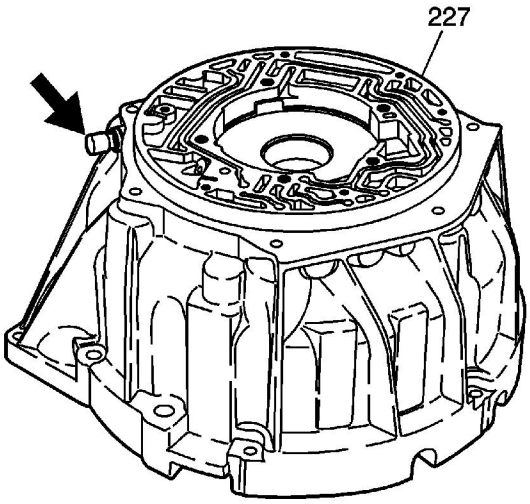
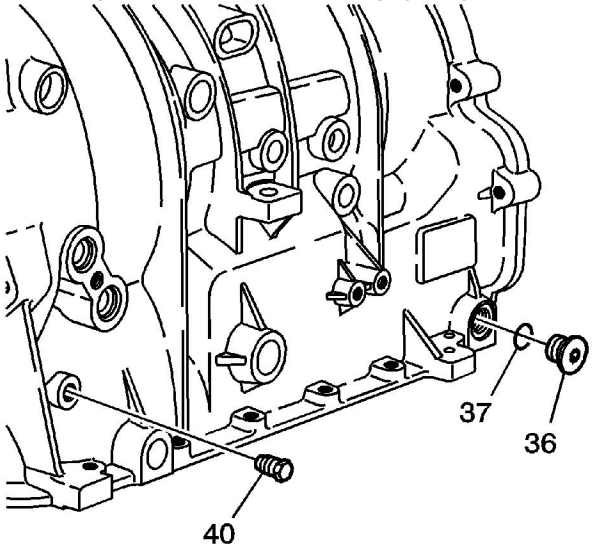
Case Components Disassemble



1. Inspect the transmission vent assembly for damage or being plugged. If the vent is damaged the torque converter housing (227) must be replaced.



2. Remove the pressure test plug (40).
3. Remove the fluid level hole plug (36) and fluid level hole plug o-ring seal (37) from the case (604).

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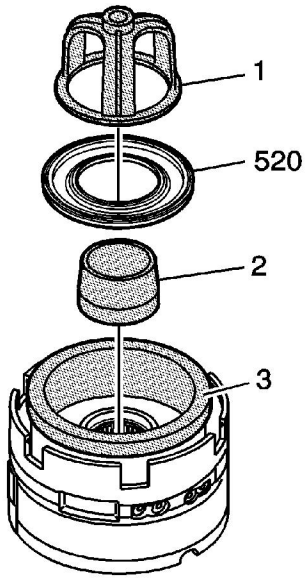
Center Support Assemble

Tools Required

- J 23327 Clutch Spring Compressor
- J 45127 Centre Support Removal Tool
- J 45136 Seal Protector
- J 45140 Seal Protector
- J-45688 Piston Installer - Pusher
- J 46239-1 Second Coast Clutch Outer Protector
- J 46239-2 Second Coast Clutch Inner Protector
- J 46239-3 Second Coast Clutch Pusher
- J-46240-1 Seal Protector
- J 46240-2 Seal Protector



1. Inspect the centre support components for the following:
   - Plugged fluid passages
   - Worn or damaged splines
   - Worn or damaged pistons
   - Worn or damaged clutch plates
2. Install J-46240-1 (2), and J 45145 (3) into the centre support housing.

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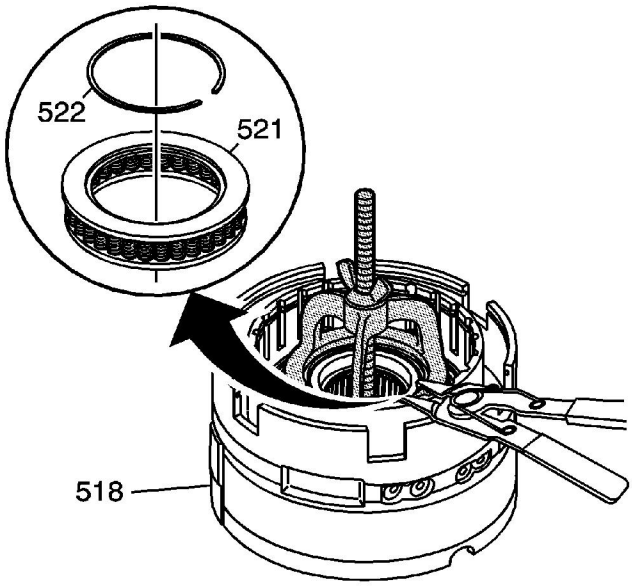
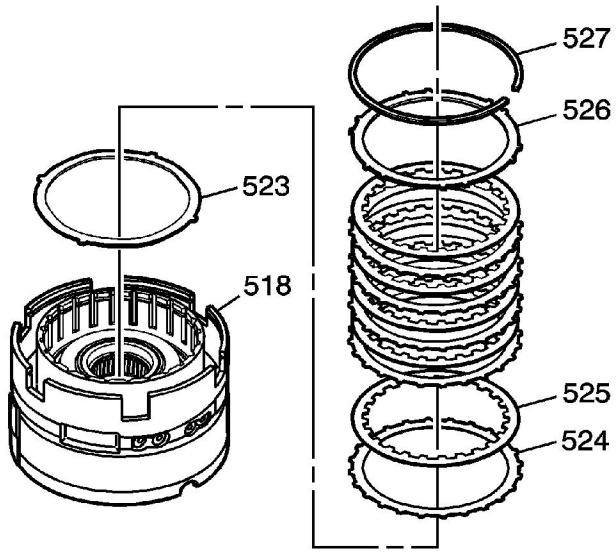
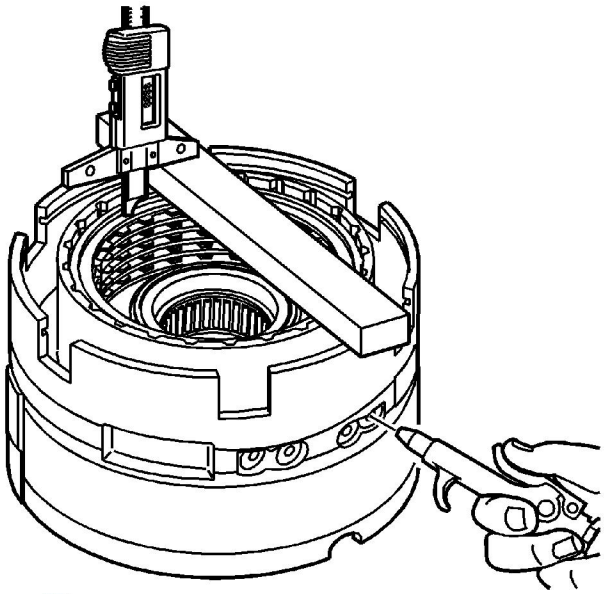


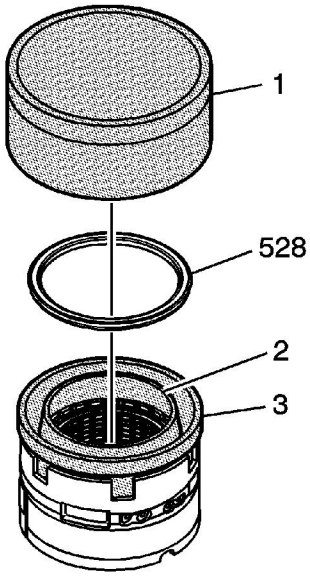
3. Install the 2nd clutch piston.
4. Install the 2nd clutch piston spring (521) into the centre support (518).
5. Use J 23327 to compress the 2nd clutch piston spring (521).
6. Install the 2nd clutch spring retainer ring (522) into the centre support (518).
7. Remove J 23327 from the centre support (518).



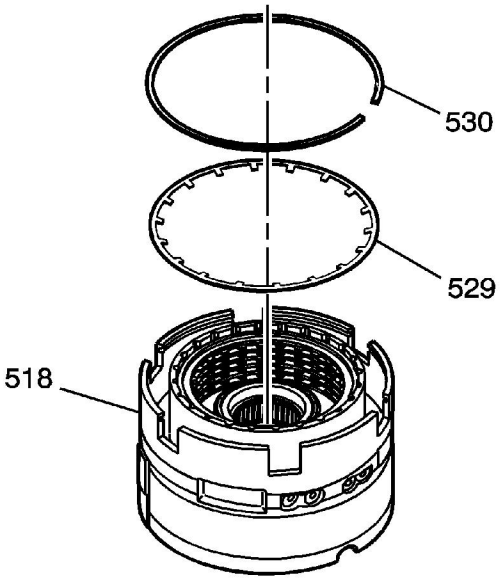
8. Install the 2nd clutch apply plate (523) into the centre support (518).
9. Install the 2nd clutch plates. Start by installing the 2nd clutch plate (524) with external splines. Alternate with the 2nd clutch plate (525) with internal splines. Refer to Clutch Plate Selection Specifications.
10. Install the 2nd clutch backing plate (526) into the centre support (518).
11. Install the 2nd clutch backing plate snap ring (527) into the centre support (518).



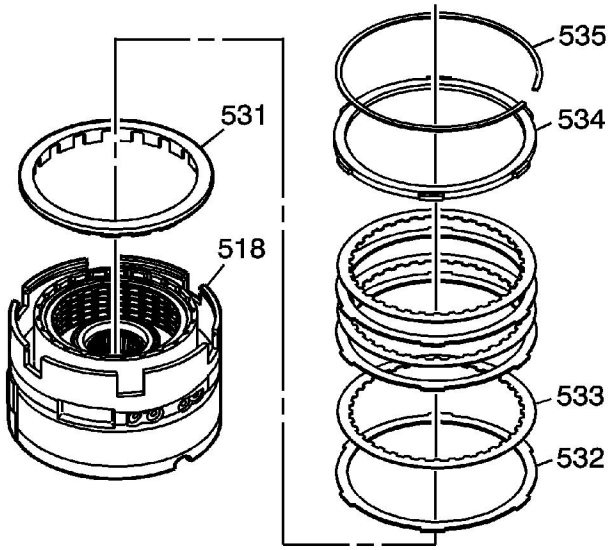
12. Measure the distance between the 2nd clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H1.
13. Apply 65 PSI (448.17 kPa) of air pressure to the specified port. Measure the distance between the 2nd clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H2.
14. Subtract H2 from H1 this is the 2nd clutch pack travel. Refer to Clutch Piston Travel Specifications.



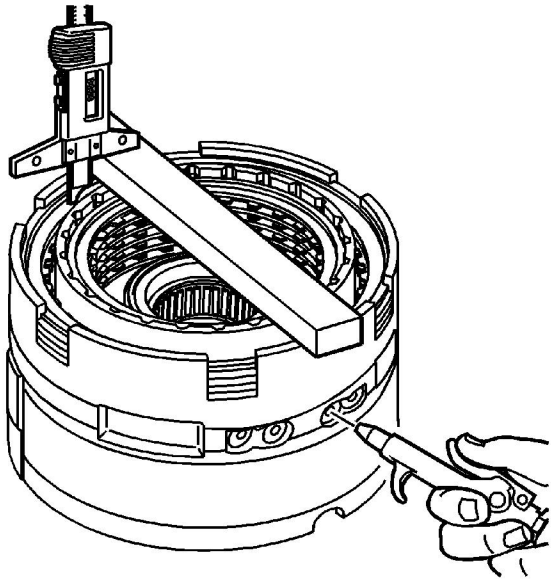
15. Using J 46239-1 (3), J 46239-2 (2) and J 46239-3 (1), install the 2nd coast clutch piston (528).



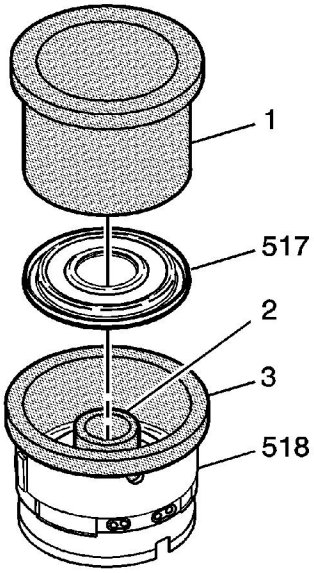
16. Install the 2nd coast clutch spring (529).
17. Using J 23327 compress the 2nd coast clutch spring (529).
18. Install the 2nd coast clutch spring retainer (530).
19. Remove J 23327 .



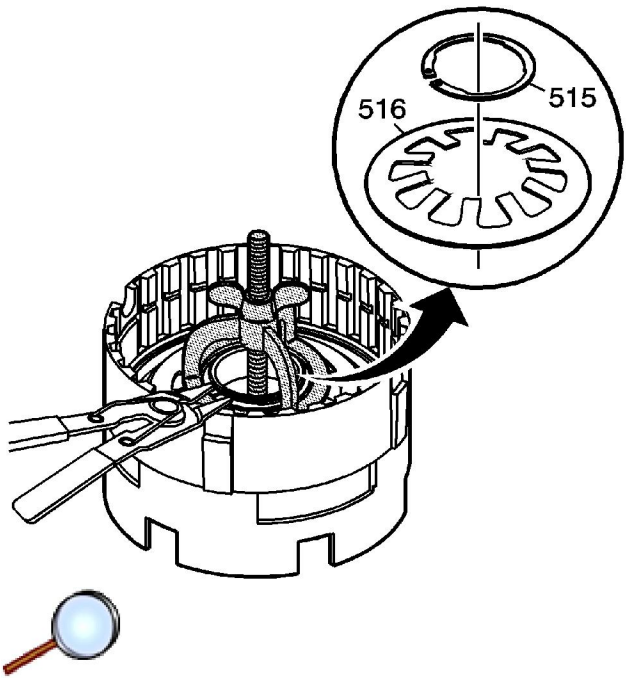
20. Install the 2nd coast clutch spacer (531).
21. Install the 2nd coast clutch plates. Starting with the 2nd coast clutch plate (532) with external splines. Alternate with the 2nd coast clutch plate (533) with internal splines. Refer to Clutch Plate Selection Specifications.
22. Install the 2nd coast clutch backing plate (534).
23. Install the 2nd coast clutch backing plate snap ring (535).



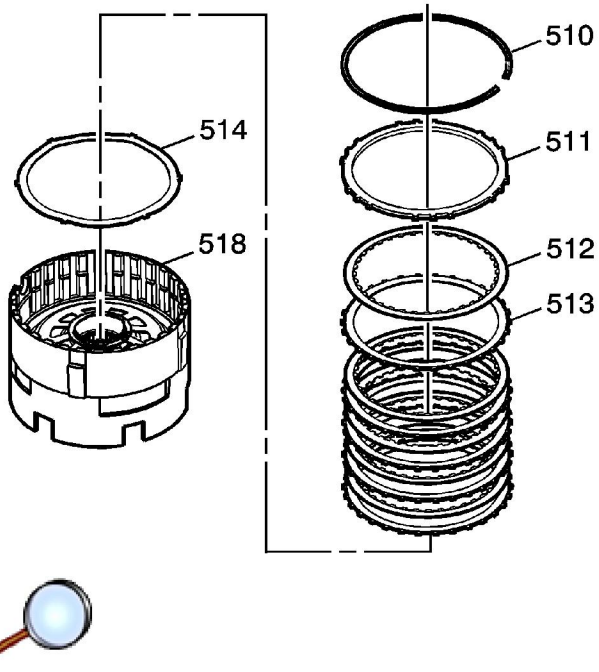
24. Measure the distance between the 2nd coast clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H1.
25. Apply 65 PSI (448.17 kPa) of air pressure to the specified port. Measure the distance between the 2nd coast clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H2.
26. Subtract H2 from H1 this is the 2nd coast clutch pack travel. Refer to Clutch Piston Travel Specifications.



27. Use the J-46240-1 (2), J-45688 (1) and the J 45136 (3) to install the low and reverse clutch piston (517) into the centre support (518).



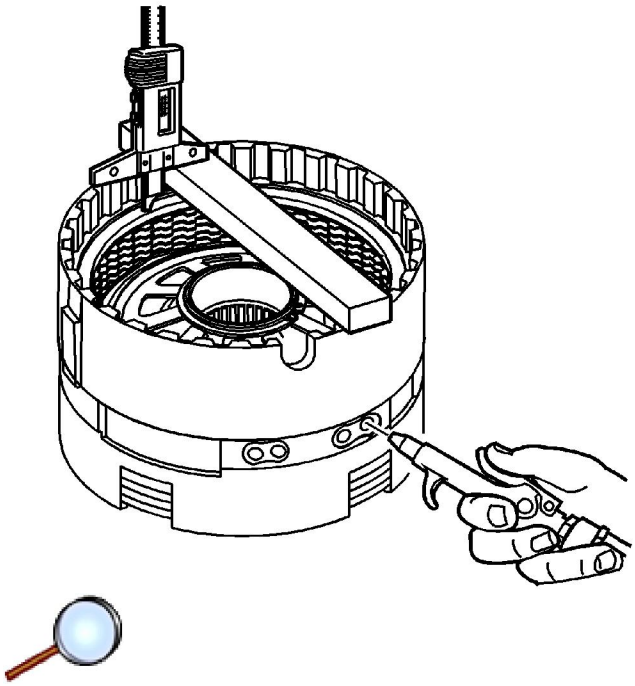
28. Use J 23327 , compress the low and reverse clutch piston spring (516).
29. Install the low and reverse clutch spring snap ring (515) into the centre support (518).



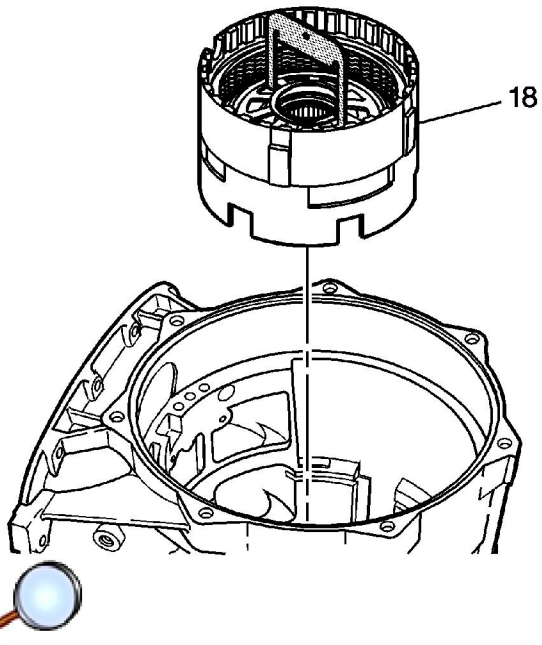
30. Install the low and reverse clutch plates. Start with the low and reverse clutch plate (513) with external splines. Alternate with the low and reverse clutch plate (512) with internal splines. Refer to Clutch Plate Selection Specifications.

    Install the low and reverse apply plate (514) into the centre support (518).

31. Install the low and reverse clutch backing plate (511) and the snap ring (510).



32. Measure the distance between the low and reverse clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H1.
33. Apply 65 PSI (448.17 kPa) of air pressure to the specified port. Measure the distance between the low and reverse clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H2.
34. Subtract H2 from H1 this is the low reverse clutch pack travel. Refer to Clutch Piston Travel Specifications.

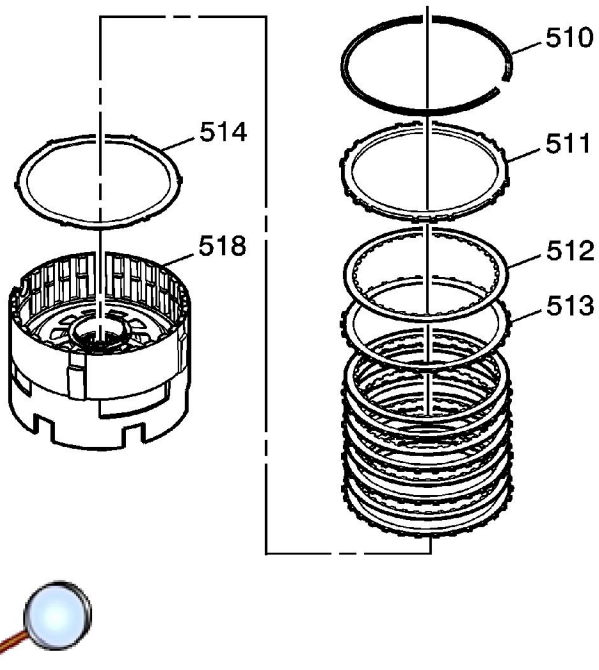


35. Using J 45127 install the centre support (18) into the case.

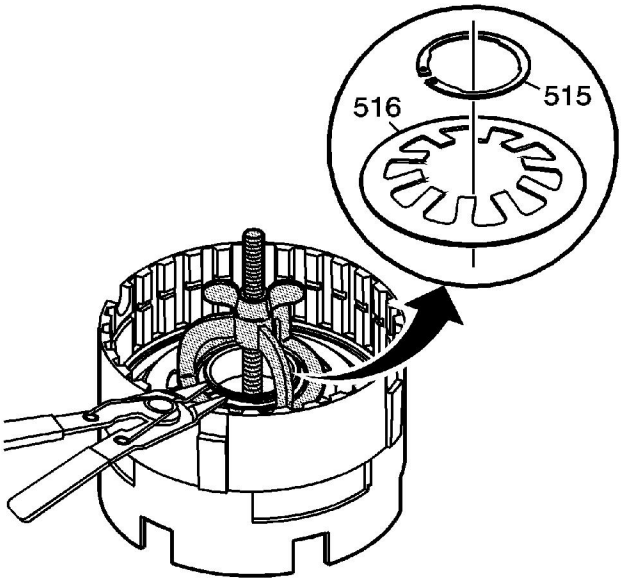
Center Support Disassemble

Tools Required

J 23327 Clutch Spring Compressor



1. Remove the snap ring (510).
2. Remove the low and reverse backing plate (511).
3. Remove the clutch plates (512, 513). Refer to Clutch Plate Selection Specifications.
4. Remove the low and reverse apply plate (514).



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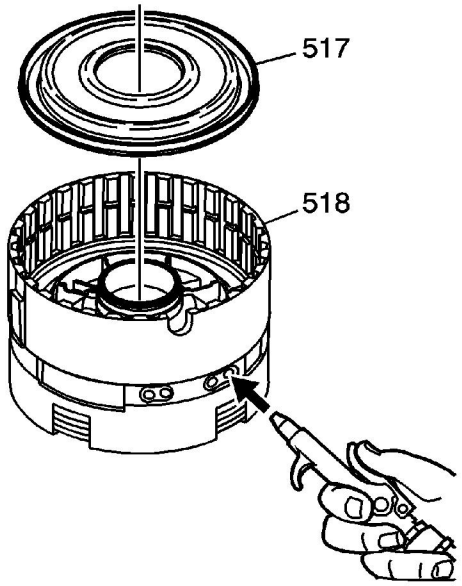
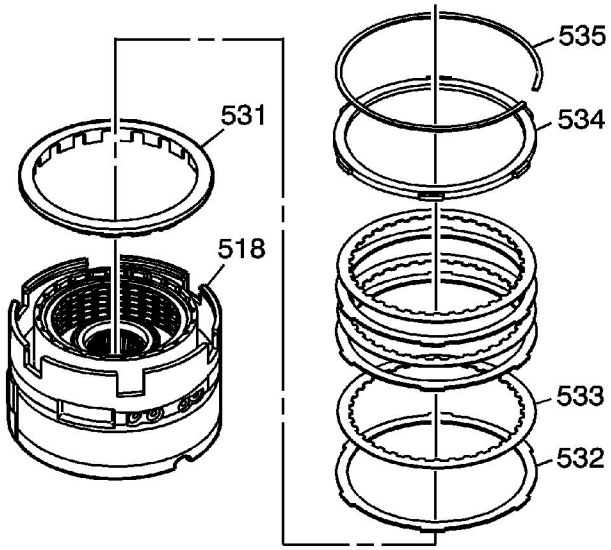
5. Use J 23327 to compress the low and reverse clutch spring (516).
6. Remove the low reverse clutch spring retainer ring (515).
7. Remove J 23327 from the center support.
8. Remove the clutch spring (516) from the center support.



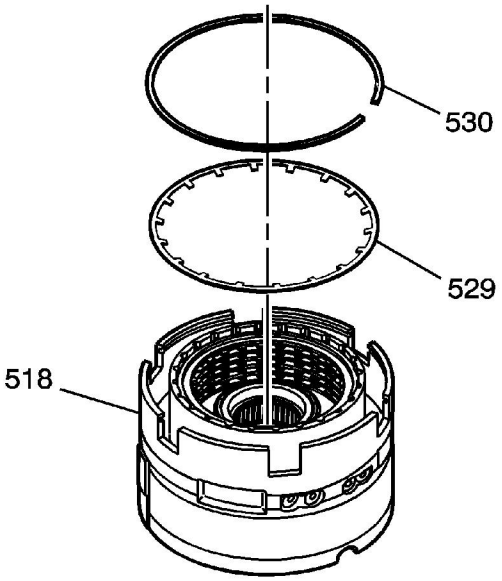
Important: It may be necessary to use air pressure to remove the piston.

9. Remove the low and reverse piston (517) from the center support (518).

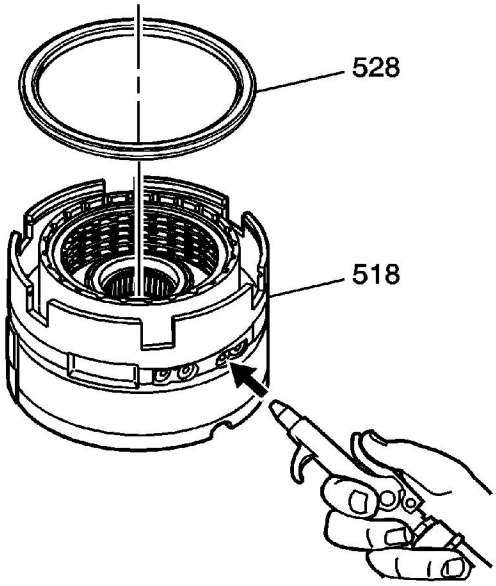


10. Remove the 2nd coast clutch plate retainer ring (535) from the center support (518).
11. Remove the 2nd coast clutch backing plate (534) from the center support (518).
12. Remove the clutch plates (532, 533). Refer to Clutch Plate Selection Specifications.

13. Remove the 2nd coast clutch spacer (531) from the center support (518).

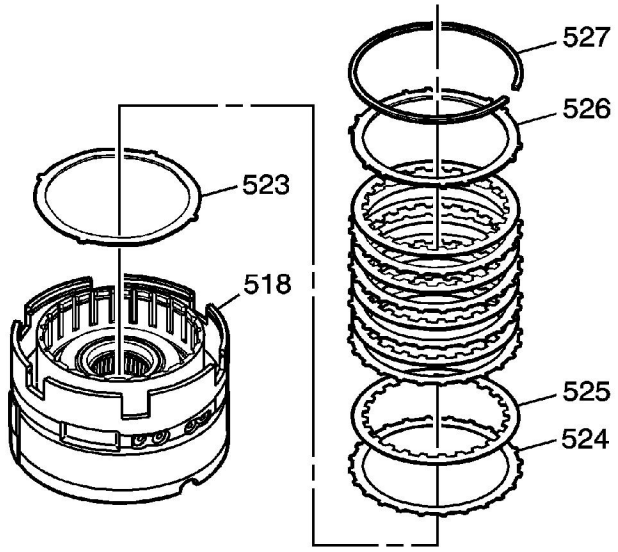


14. Remove the 2nd coast clutch spring retainer (530).
15. Remove the 2nd coast clutch spring (529) from the center support (518).

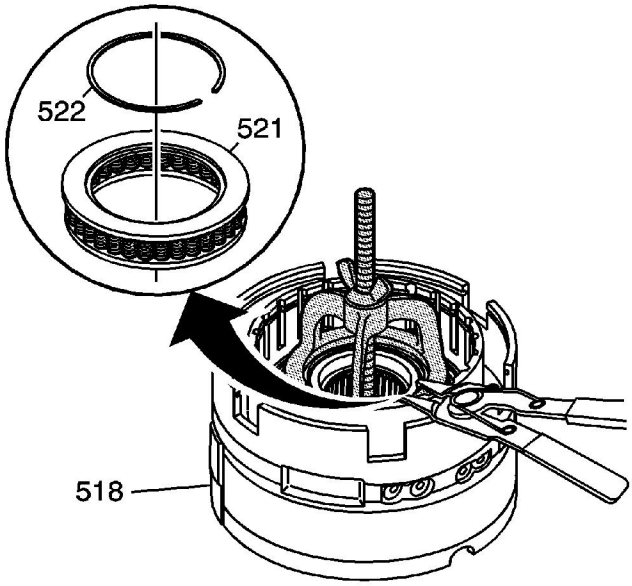


Important: It may be necessary to use air pressure to remove the piston.

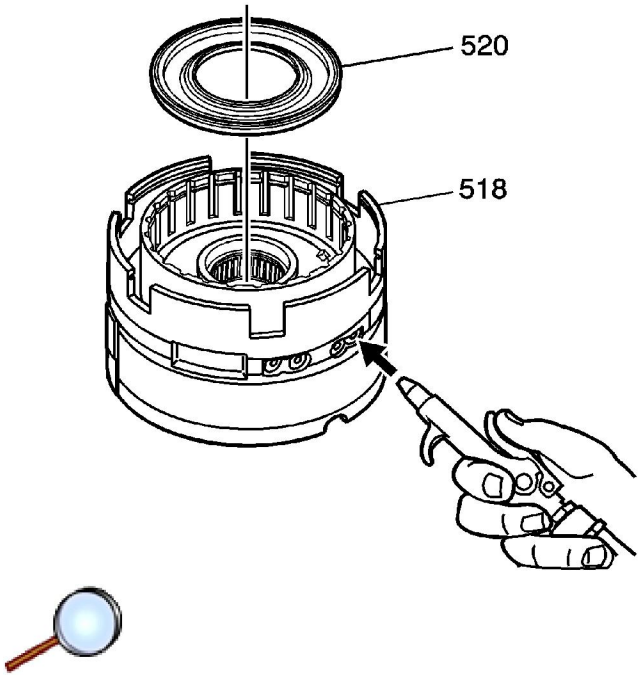
16. Remove the 2nd coast clutch piston (528) from the center support (518).



17. Remove the retainer ring (527) from the center support (518).
18. Remove the 2nd clutch backing plate (526) from the center support (518).
19. Remove the clutch plates (524, 525) from the center support (518). Refer to Clutch Plate Selection Specifications.
20. Remove the 2nd clutch apply plate (523) from the center support (518).



21. Use J 23327 to compress the 2nd clutch piston spring (521).
22. Remove the retainer ring (522) from the center support (518).
23. Remove the J 23327 from the cnter support (518).
24. Remove the 2nd clutch piston spring (521) from the center support (518).



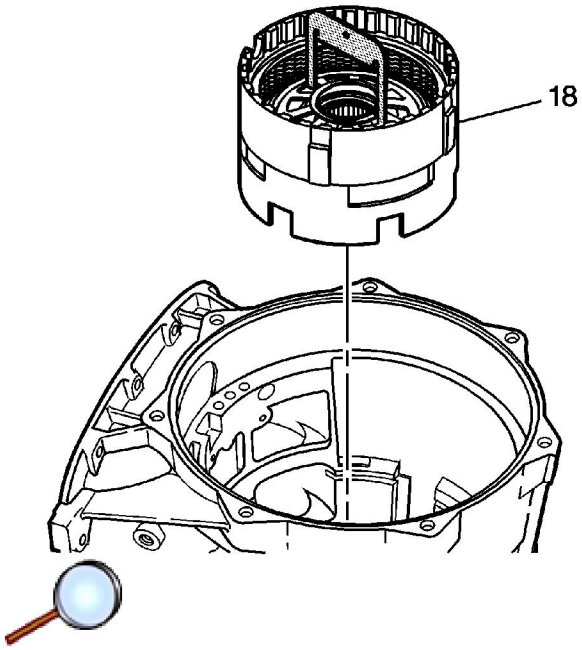
Important: It may be necessary to use air pressure to remove the piston.

25. Remove the 2nd clutch piston (520) from the center support (518).

Center Support Removal

Tools Required

J 45127 Centre Support Removal Tool



Use J 45127 to remove the centre support (18) from the case.

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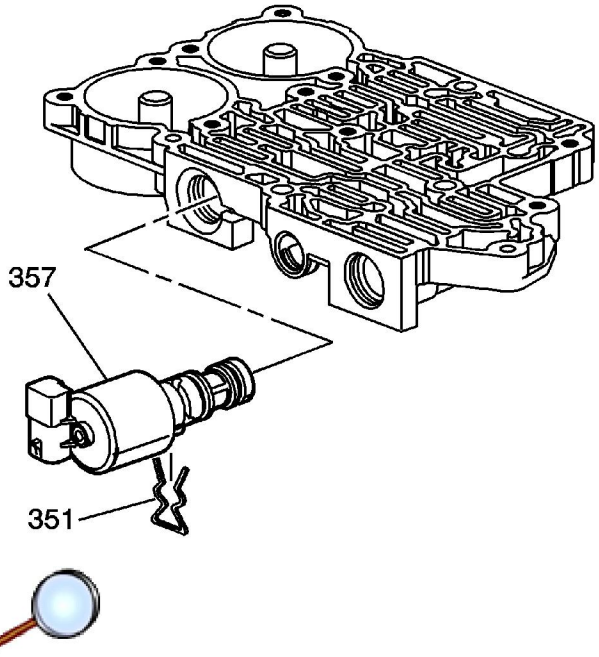
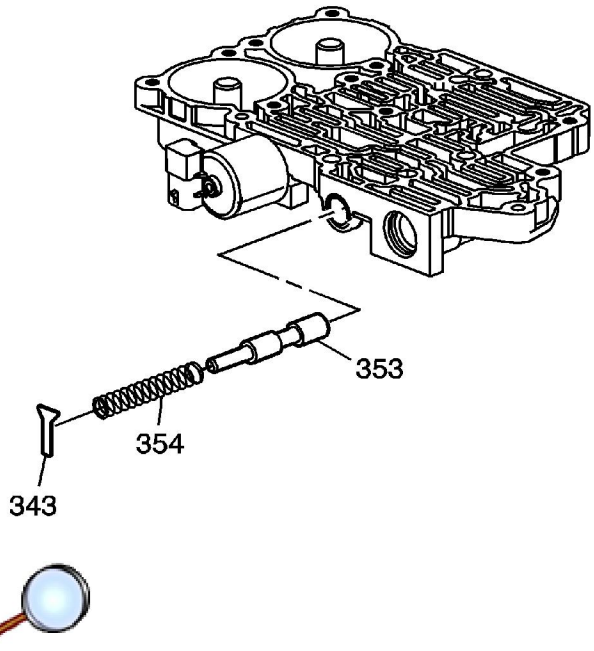
Control Valve Body Accumulator Assembly Assemble



1. Install the pressure control solenoid (357).
2. Install the pressure control solenoid retainer (351).



3. Install the feed limit valve (353).
4. Install the feed limit valve spring (354).
5. Install the feed limit valve retainer (343).

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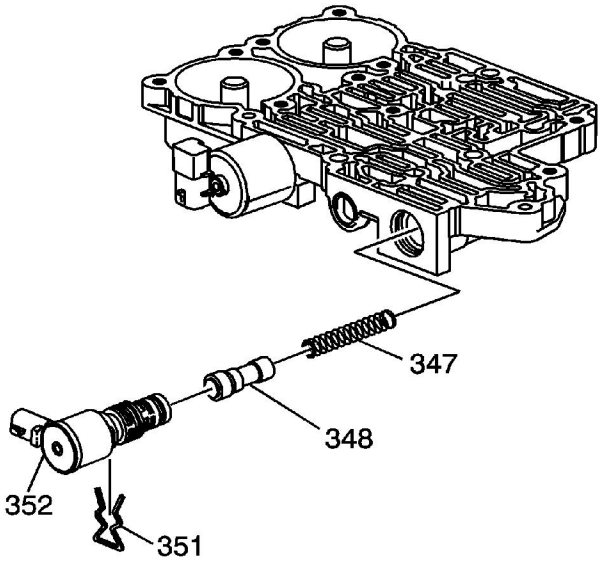
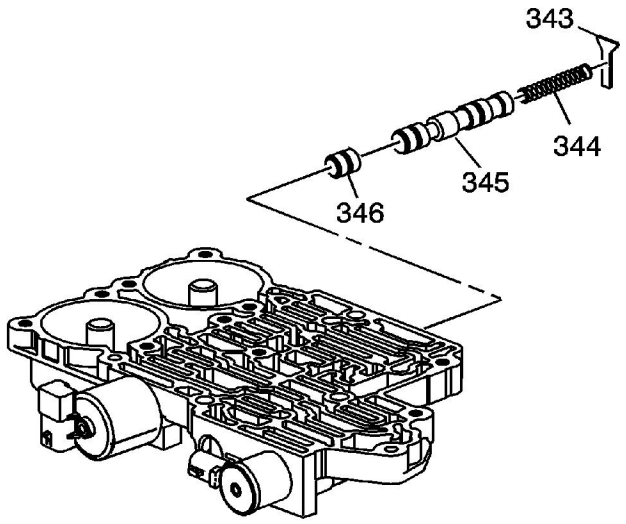
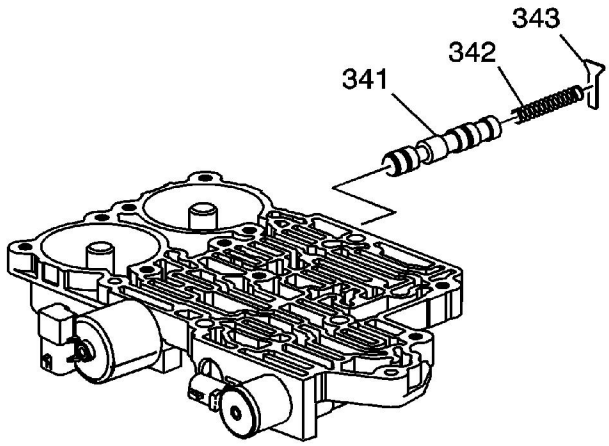


6. Install the tcc pwm solenoid valve spring (347).
7. Install the tcc regulator apply valve (348).
8. Install the tcc pwm solenoid (352).
9. Install the tcc pwm solenoid retainer (351).

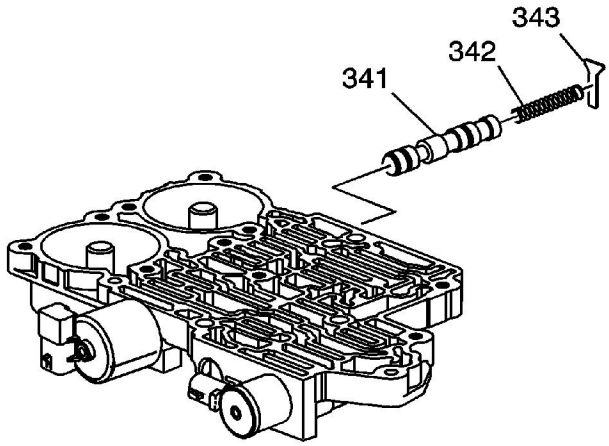


10. Install the 3-4 shift control valve (346).
11. Install the 3-4 shift valve (345).
12. Install the 3-4 shift valve spring (344).
13. Install the 3-4 shift control valve retainer (343).

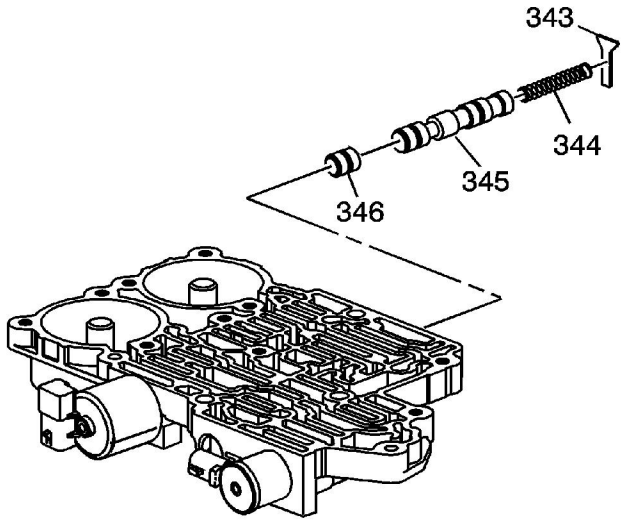


14. Install the safety mode valve (341).
15. Install the safety mode valve spring (342).
16. Install the safety mode valve retainer (343).

Control Valve Body Accumulator Assembly Disassemble



1. Remove the safety mode valve retainer (343).
2. Remove the safety mode valve spring (342).
3. Remove the safety mode valve (341).



4. Remove the 3-4 shift valve retainer (343).
5. Remove the 3-4 shift valve spring (344).
6. Remove the 3-4 shift valve (345).
7. Remove the 3-4 shift control valve (346).

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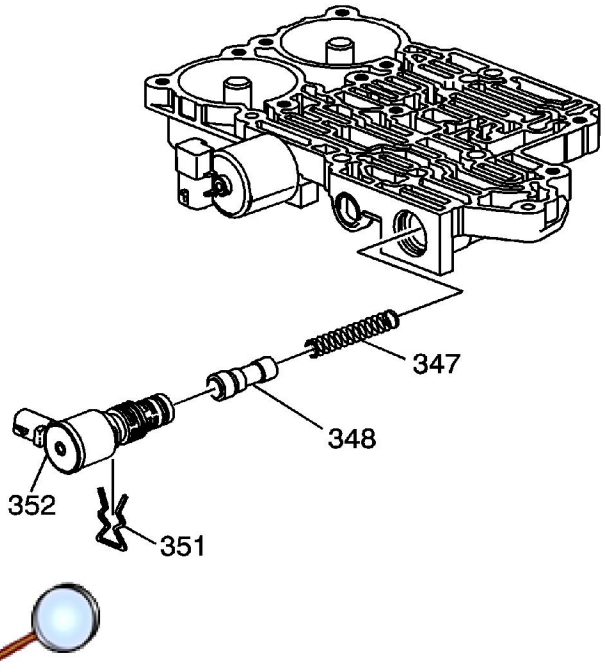
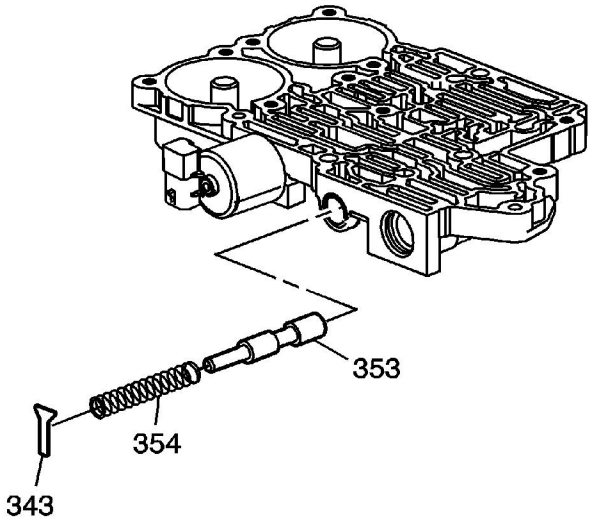
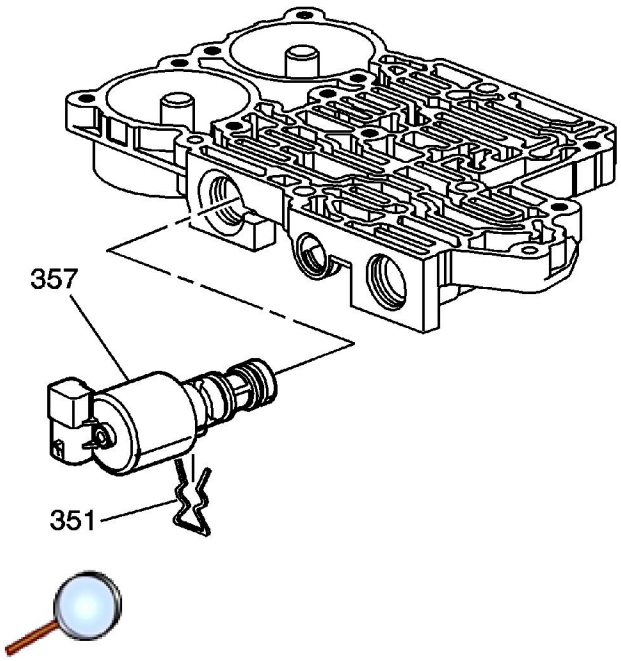


8. Remove the torque converter clutch (TCV) pulse width modulated (PWM) solenoid valve retainer (351).
9. Remove the tcc pwm solenoid (352).
10. Remove the tcc regulator apply valve (348).
11. Remove the tcc regulator apply valve spring (347).

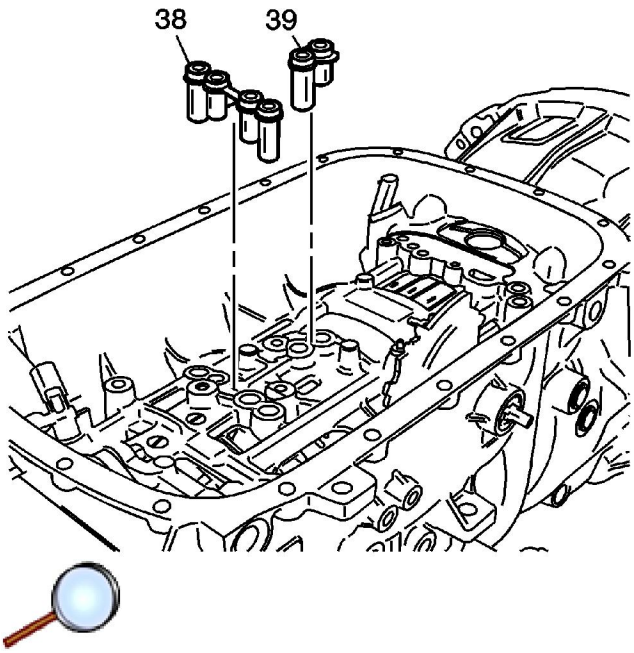


12. Remove the feed limit valve retainer (343).
13. Remove the feed limit valve spring (354).
14. Remove the feed limit valve (353).

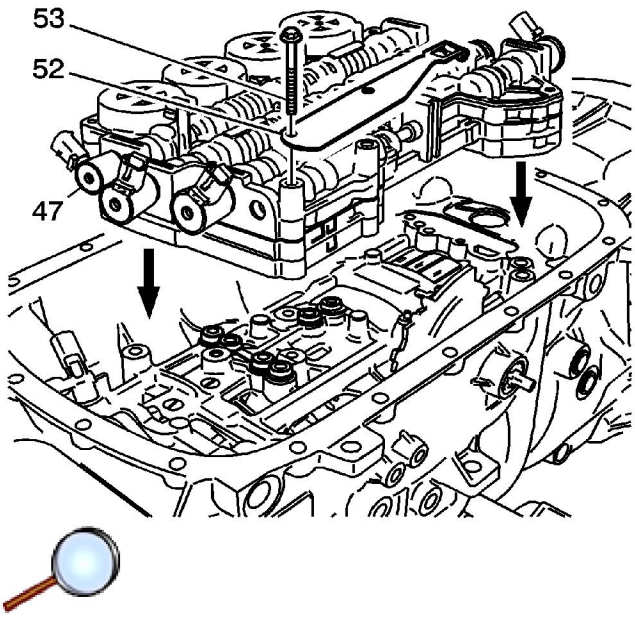


15. Remove the pressure control solenoid retainer (351).
16. Remove the pressure control solenoid (357).

Control Valve Body Accumulator Assembly Installation



1. Install the NEW overdrive clutch fluid passage sleeve (39) into the case.
2. Install the NEW centre support fluid passage sleeve (38) into the case.



3. Install the control valve body accumulator assembly (47) onto the case.
4. Install the detent lever spring (52) onto the case.
5. Install the control valve body retaining bolts (53) into the case and hand tighten.

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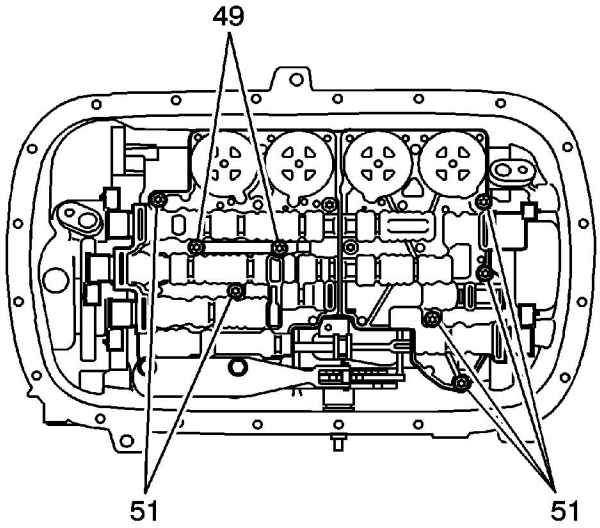
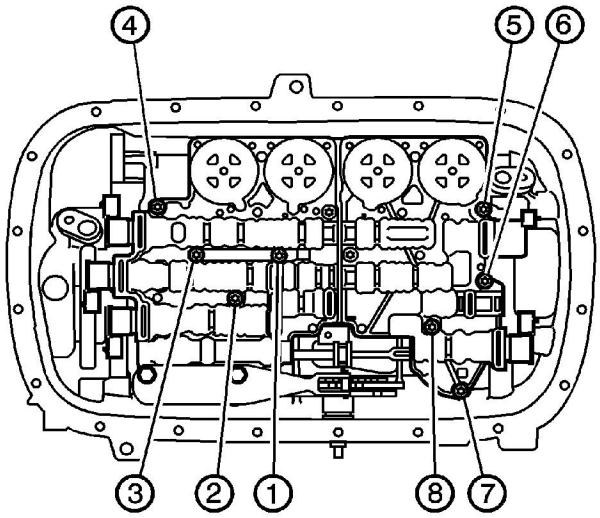
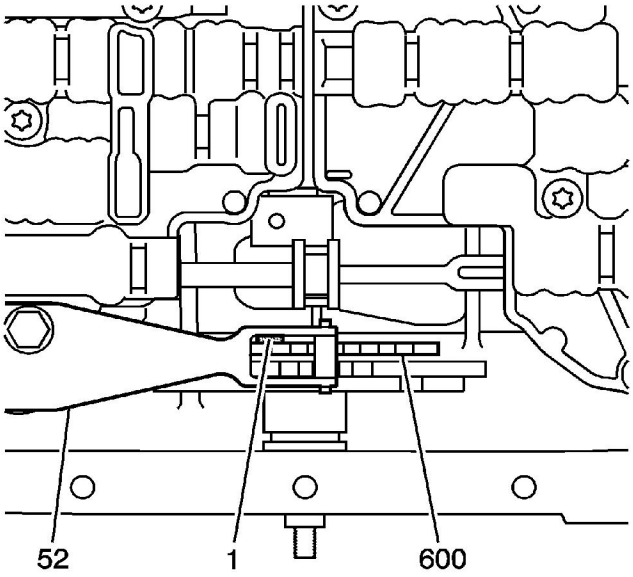


6. Install the control valve body accumulator assembly bolts (49, 51) into the case and hand tighten.

Caution: Refer to Fastener Caution in the Preface section.

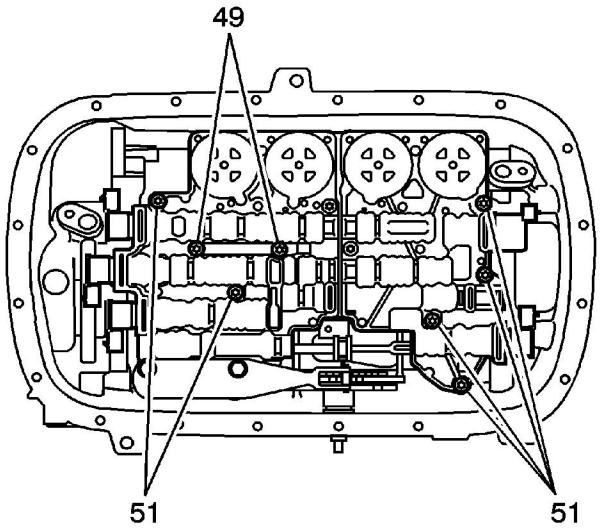


7. Tighten the control valve body accumulator retaining bolts in sequence to **11 N·m (8 lb ft)**.



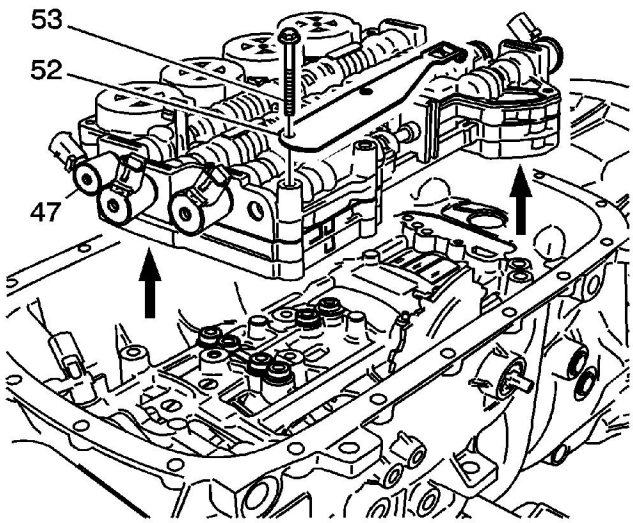
8. Install a 0.8 mm spacer (1) between the shift shaft detent lever (600) and the shift shaft detent assembly (52).
9. Tighten the detent assembly bolts (53) to **11 N·m (8 lb ft)**.
10. Remove the spacer (1).

Control Valve Body Accumulator Assembly Removal



Important: Only remove the bolts called out in the graphic, there will be two remaining.

1. Remove the control valve body retaining bolts (49 and 51).



2. Remove the control valve body retaining bolts (53).
3. Remove the manual shaft detent (52).
4. Remove the control valve body (47).

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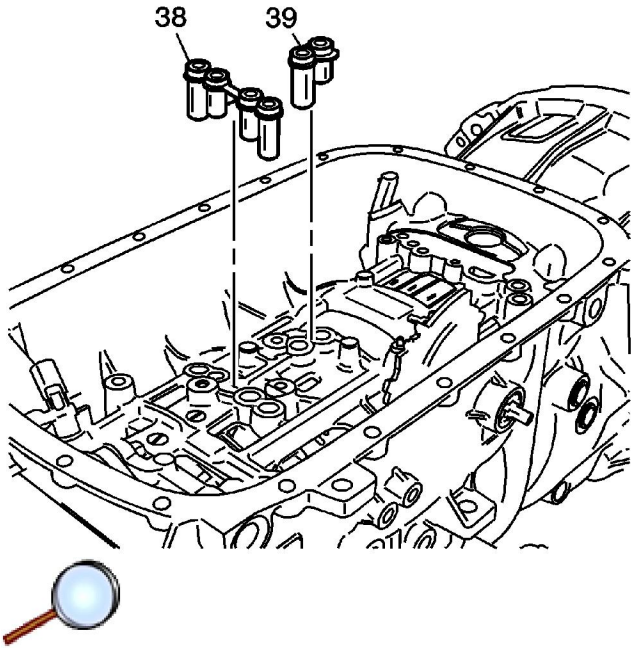
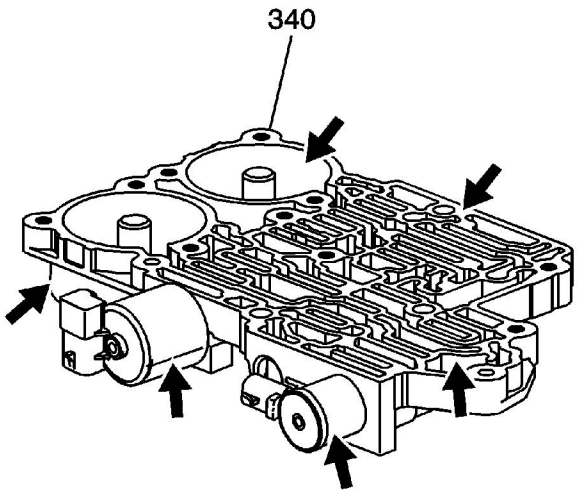


5. Remove the centre support fluid passage sleeve (38) and the overdrive clutch fluid passage sleeve (39).

Control Valve Front Body Inspection



1. Inspect the front control valve body (340) for the following conditions:
   - Damaged or porous casting
   - Damaged sealing surfaces
   - Debris in fluid passages
2. Use a suitable tool, before disassembly, to inspect the front control valve body (340) components for the following conditions:
   - Valves binding or sticking in their bores or bushings
   - Broken missing or damaged springs
   - Missing or damaged retainers
   - Damaged solenoid valves
   - Debris in valve line ups or solenoid valves
3. During disassembly, inspect the front control valve body for the following conditions:
   - Worn or damaged valves, valve bores or bushings
   - Broken, missing or damaged springs
   - Missing or damaged retainers
   - Damaged solenoid valves
   - Debris in valve line ups or solenoid valve

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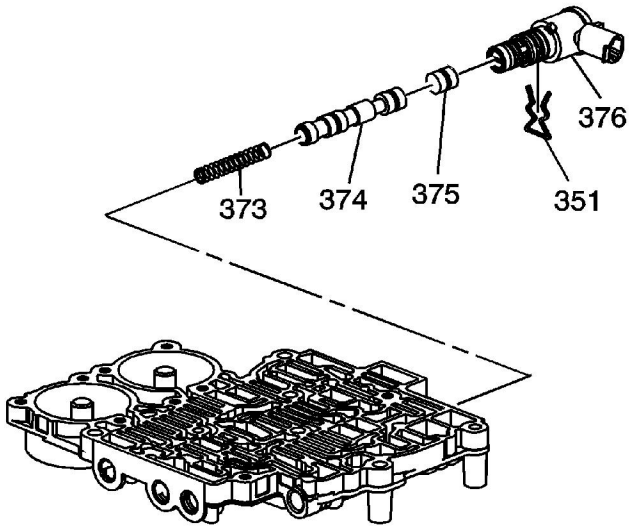
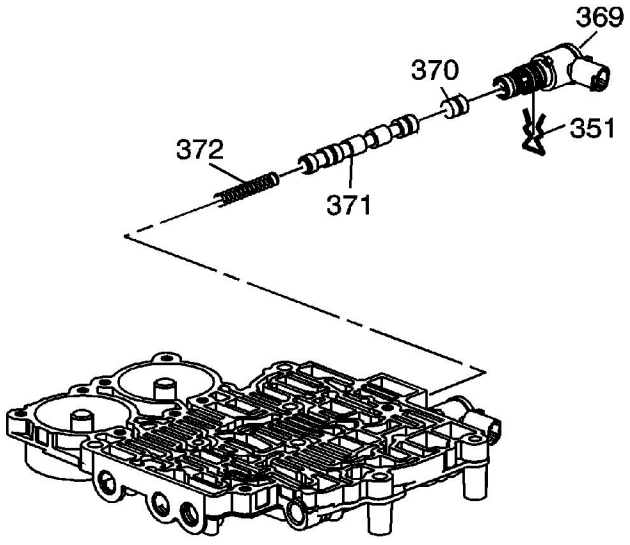
Control Valve Rear Body Assemble



1. Install the 4-5 shift valve spring (373).
2. Install the 4-5 shift valve (374).
3. Install the 4-5 shift control valve (375).
4. Install the 4-5 shift solenoid (376).
5. Install the 4-5 shift solenoid retainer (351).



6. Install the 2-3 shift valve spring (372).
7. Install the 2-3 shift valve (371).
8. Install the 2-3 shift control valve (370).

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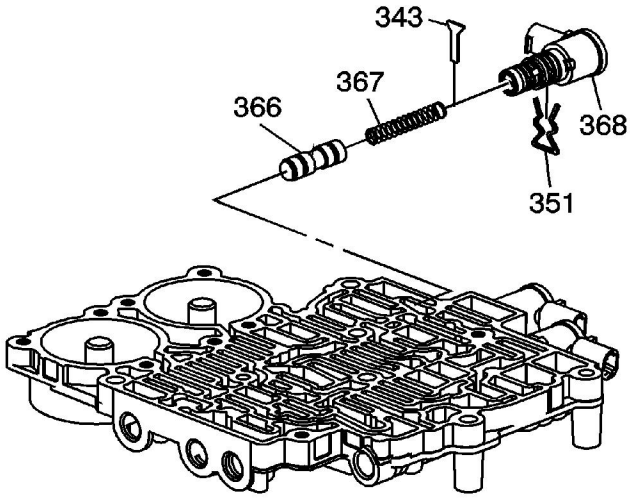
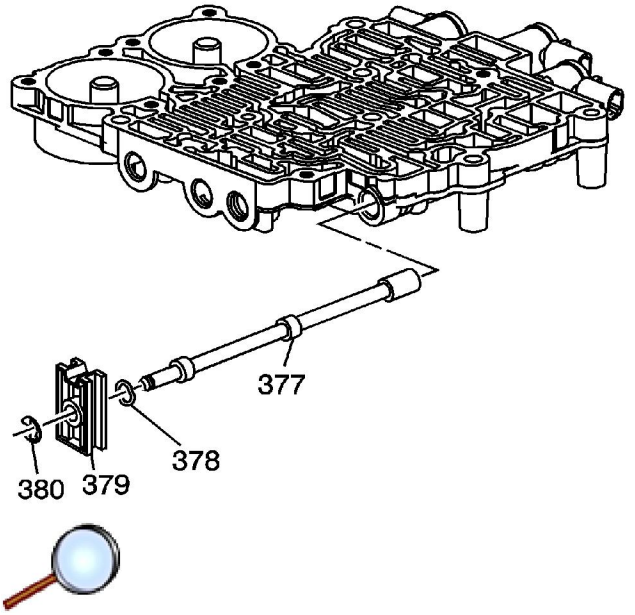
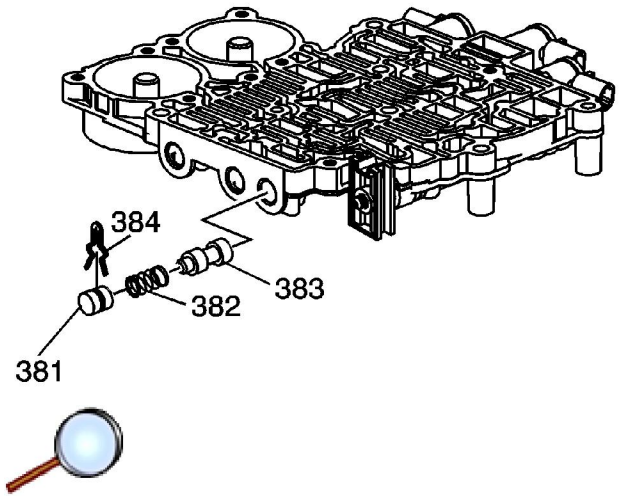
9. Install the 2-3 shift solemoid (369).
10. Install the 2-3 shift solenoid retainer (351).



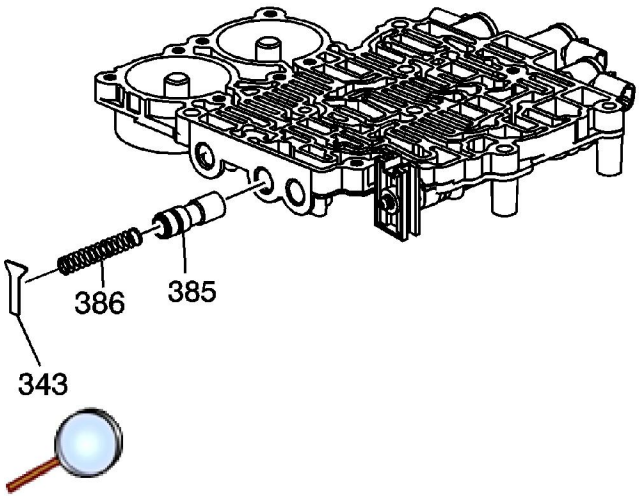
11. Install the 1-2 shift control valve (366).
12. Install the 1-2 shift control valve spring (367).
13. Install the 1-2 shift control valve retainer (343).
14. Install the 1-2 shift solenoid (368).
15. Install the 1-2 shift solenoid retainer (351).



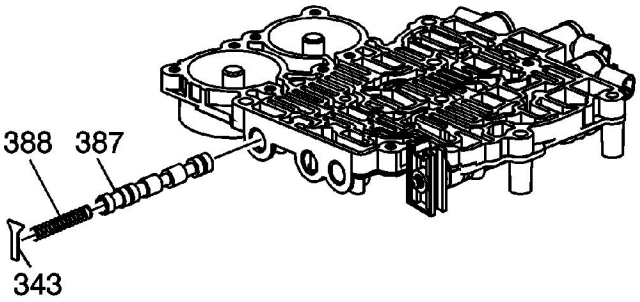
16. Install the manual valve link retainer (380).
17. Install the manual valve link (379).
18. Install the manual valve link retainer (378).
19. Install the manual valve (377).



20. Install the low pressure control valve (383).
21. Install the low pressure control valve spring (382).
22. Install the bore plug (381).
23. Install the low pressure control valve bore retainer (384).

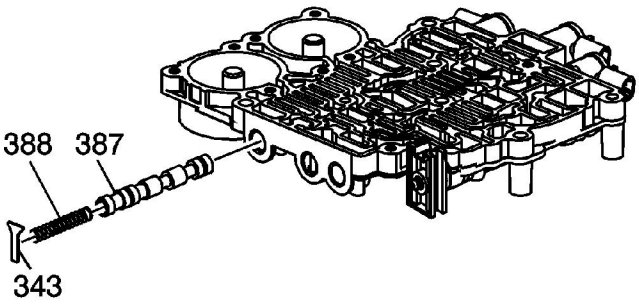


24. Install the reverse lock out valve (385).
25. Install the reverse lock out spring (386).
26. Install the reverse lock out valve retainer (343).

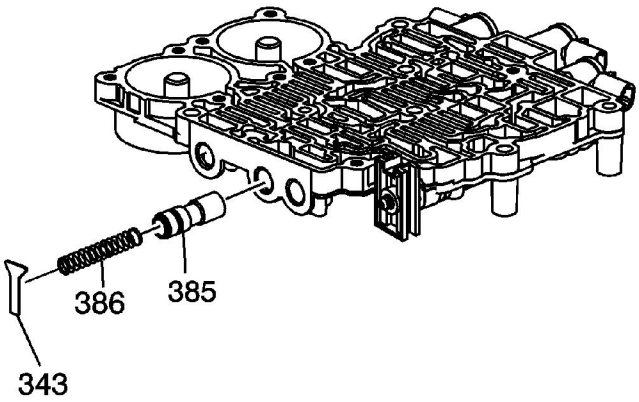


27. Install the 1-2 shift valve (387).
28. Install the 1-2 shift valve spring (388).
29. Install the 1-2 shift valve retainer (343).

Control Valve Rear Body Disassemble



1. Remove the 1-2 shift valve retainer (343).
2. Remove the 1-2 shift valve spring (388).
3. Remove the 1-2 shift valve (387).



4. Remove the reverse lock out valve retainer (343).
5. Remove the reverse lock out spring (386).
6. Remove the reverse lock out valve (385).

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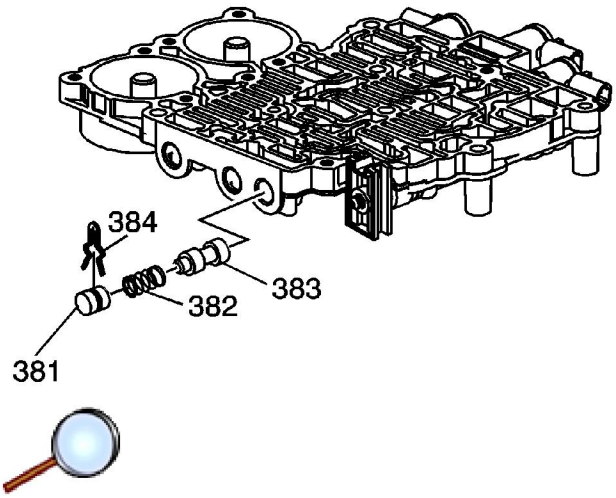
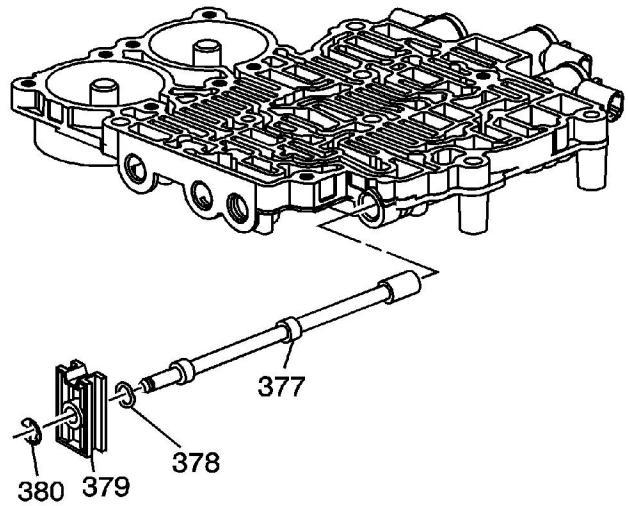
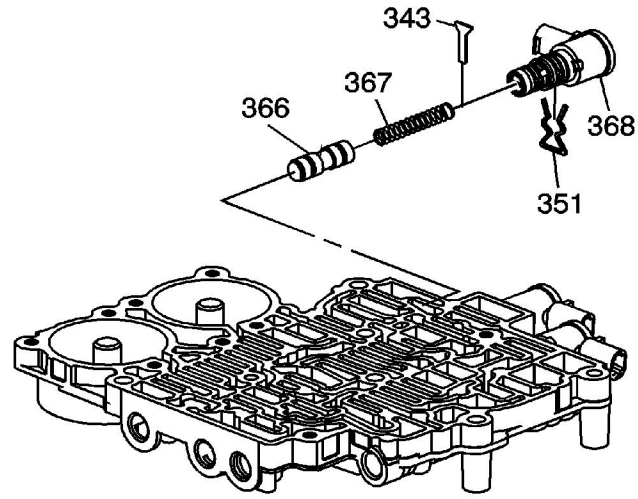


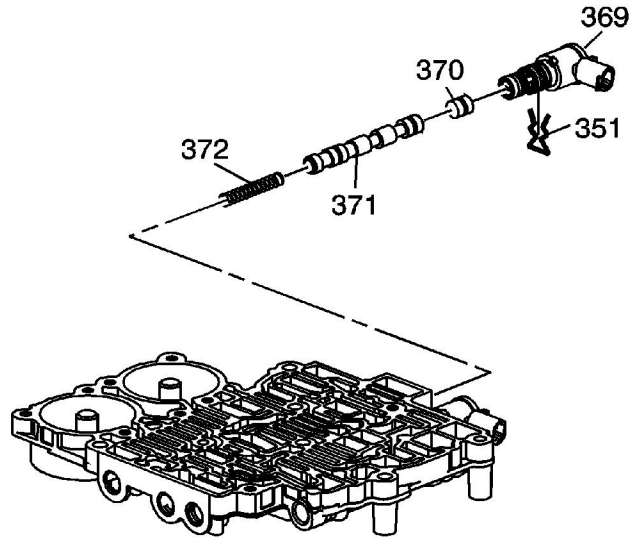
7. Remove the low pressure control valve bore retainer (384).
8. Remove the low pressure control valve bore plug (381).
9. Remove the low pressure control valve spring (382).
10. Remove the low pressure control valve (383).



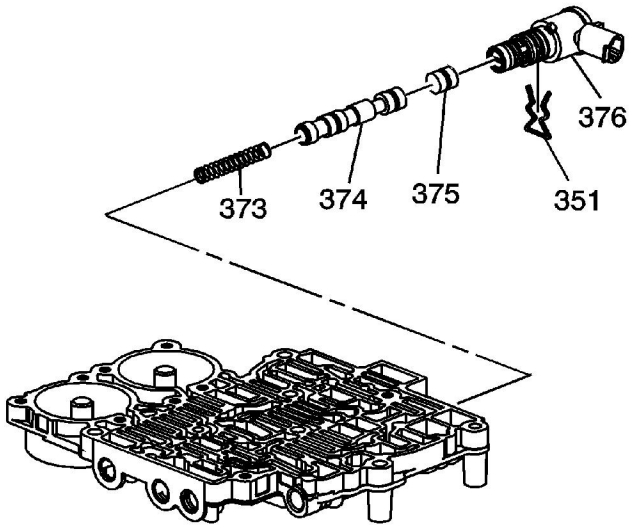
11. Remove the manual valve link retainer (380).
12. Remove the manual valve link (379).
13. Remove the manual valve link retainer (378).
14. Remove the manual valve (377).



15. Remove the 1-2 shift solenoid retainer (351).
16. Remove the 1-2 shift solenoid (368).
17. Remove the 1-2 shift control valve retainer (343).
18. Remove the 1-2 shift control valve spring (367).
19. Remove the 1-2 shift control valve (366).

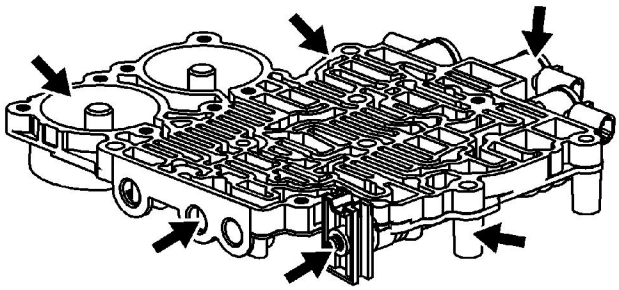


20. Remove the 2-3 shift solenoid retainer (351).
21. Remove the 2-3 shift solenoid (369).
22. Remove the 2-3 shift control valve (370).
23. Remove the 2-3 shift valve (371).
24. Remove the 2-3 shift valve spring (372).



25. Remove the 4-5 shift solenoid retainer (351).
26. Remove the 4-5 shift solenoid (376).
27. Remove the 4-5 shift control valve (375).
28. Remove the 4-5 shift valve (374).
29. Remove the 4-5 shift valve spring (373).

Control Valve Rear Body Inspection



1. Inspect the rear control valve body (365) for the following conditions:
   - Damaged or porous casting
   - Damaged sealing surfaces
   - Debris in fluid passages
2. Use a suitable tool, before disassembly, to inspect the rear control valve body (365) components for the following conditions:
   - Valves binding or sticking in their bores or bushings
   - Broken missing or damaged springs
   - Missing or damaged retainers
   - Damaged solenoid valves
   - Debris in valve line ups or solenoid valves
3. During disassembly, inspect the rear control valve body for the following conditions:
   - Worn or damaged valves, valve bores or bushings
   - Broken, missing or damaged springs
   - Missing or damaged retainers
   - Damaged solenoid valves
   - Debris in valve line ups or solenoid valve

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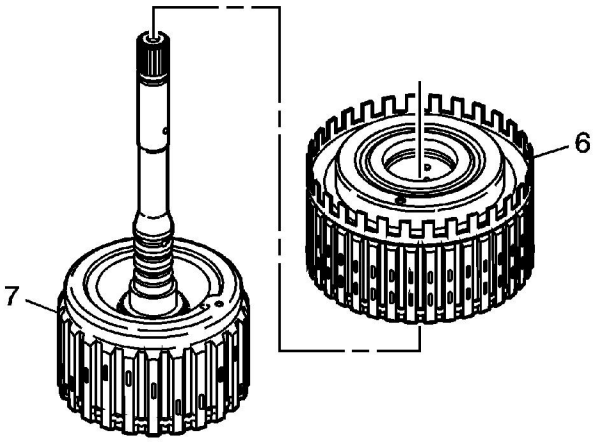
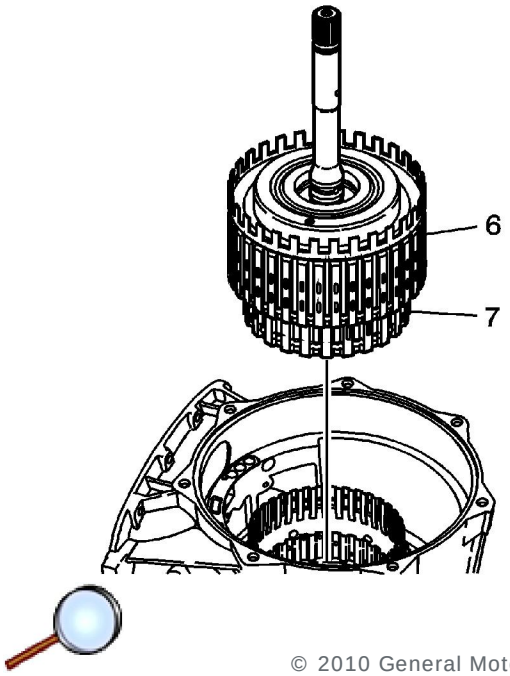
Direct and Reverse and Forward and Coast Clutch Installation



Notice: Do not damage the input shaft fluid seals when removing or installing the direct and reverse coast clutch assembly.

1. Place the direct and reverse clutch assembly (6) onto the forward and coast clutch assembly (7).



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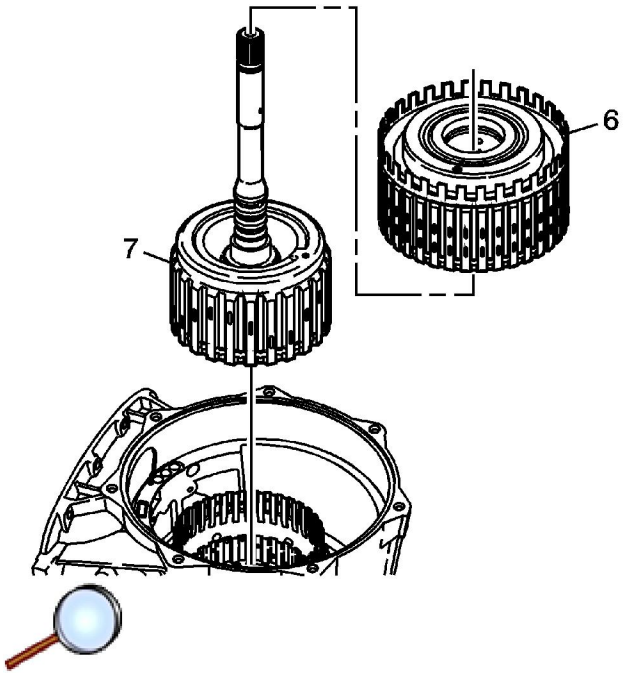
2. Install the direct and reverse clutch assembly (6) and the forward and coast clutch assembly (7) into the case.

Direct and Reverse and Forward and Coast Clutch Removal



Notice: Do not damage the input shaft fluid seals when removing or installing the direct and reverse coast clutch assembly.

1. Remove the forward and coast clutch assembly (7) and the direct and reverse clutch assembly (6) from the case.
2. Lift the direct and reverse clutch assembly (6) off of the forward and coast clutch assembly (7).

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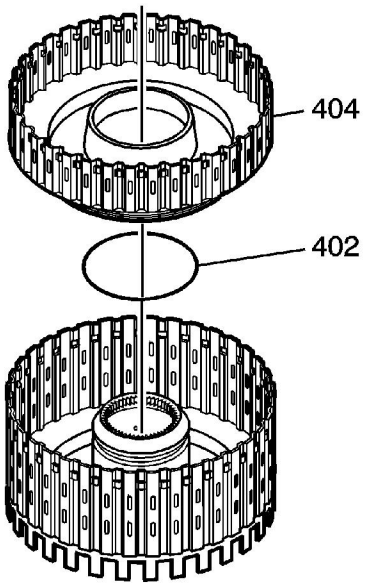
Direct and Reverse Clutch Assemble

Tools Required

- J 38734 Intermediate Spring Compressor Adapter
- J 45133 Seal Protector
- J 45139 Compressor Plate



1. Inspect the reverse clutch housing for the following:
   - Plugged feed passages
   - Damaged or worn splines
   - Seal ring groove nicks or burrs
   - Cracked or blocked fluid passages
   - Damaged or worn bushing
2. Inspect the reverse clutch piston and the direct clutch piston for the following:
   - Cracks or damage to seal grooves
   - Wear on the piston
   - Inner seal damage
   - Damaged ball check valve
   - Damaged or worn clutch plates
3. Install the reverse clutch piston inner seal (402).
4. Install the reverse clutch piston (404).

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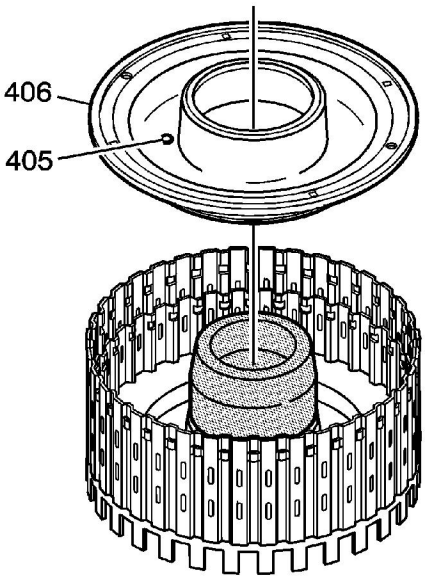
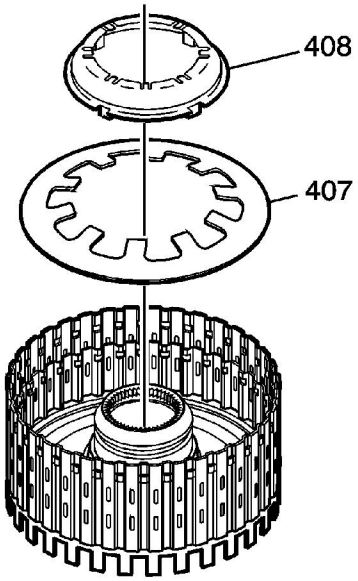
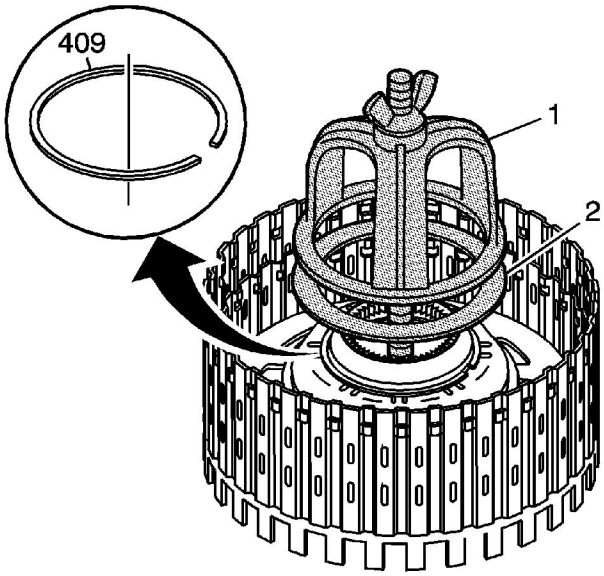


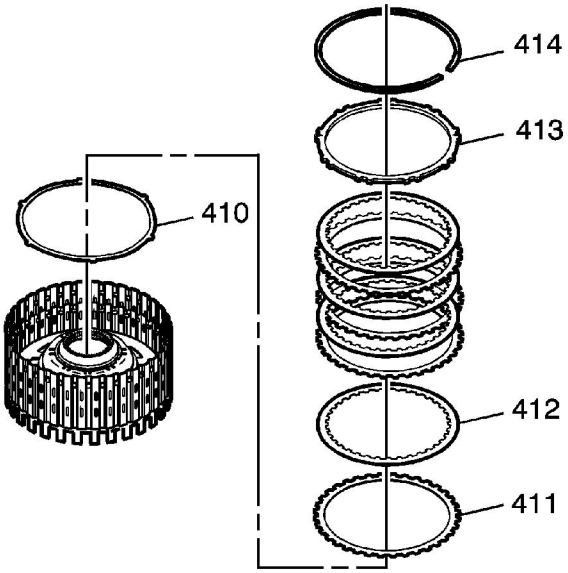
5. Install J 45133 onto the direct and reverse clutch assembly (6).
6. Install the direct clutch piston (406).



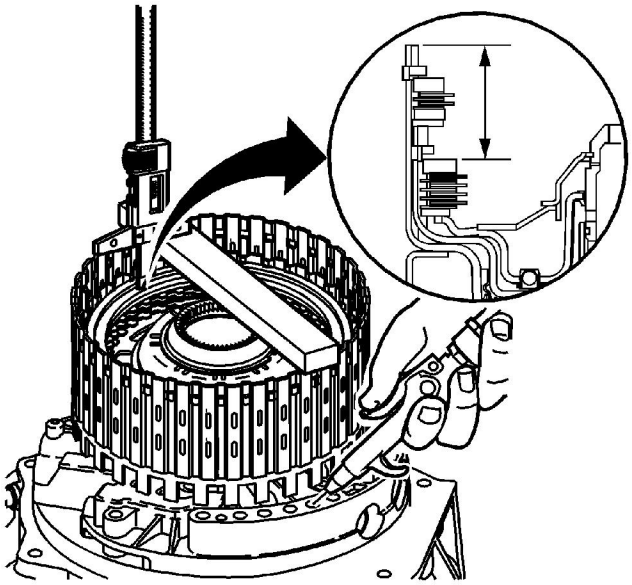
7. Install the piston spring (407).
8. Install the piston spring retainer (408).



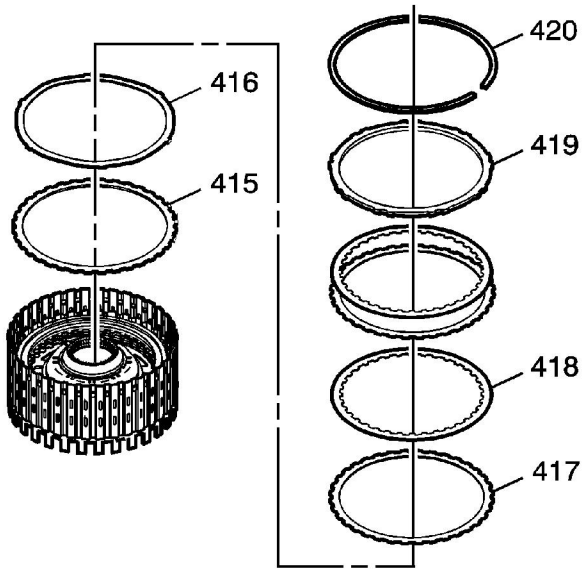
9. Use J 38734 (1) and J 45139 (2) to compress the direct and reverse piston spring.
10. Install the direct and reverse clutch spring snap ring (409).



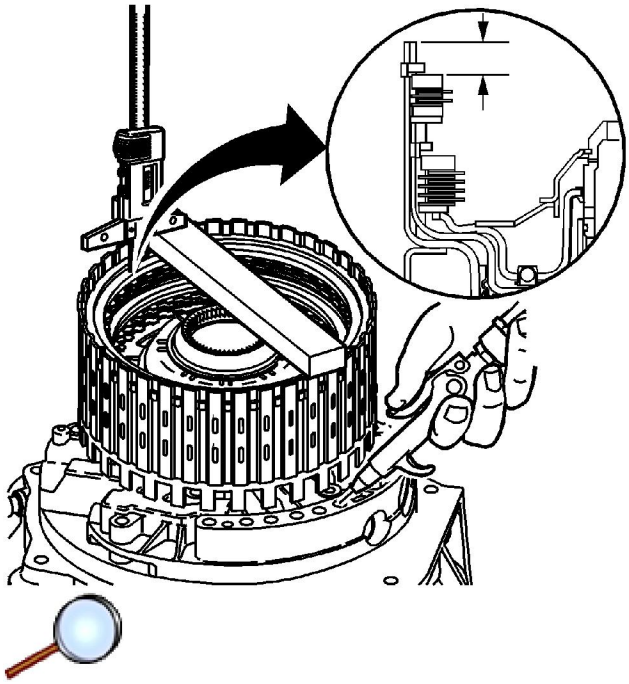
11. Install the apply plate (410).
12. Install the clutch plates (412, 411), starting with the direct clutch plate (411) with outer splines, alternating with the direct clutch plate (412) with inner splines. Refer to Clutch Plate Selection Specifications.
13. Install the backing plate (413).
14. Install the backing plate snap ring (414).



15. Measure the distance between the direct clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H1.
16. Apply 65 PSI (448.17 kPa) of air pressure to the specified port. Measure the distance between the direct clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H2.
17. Subtract H2 from H1. This is the clutch pack travel. Refer to Clutch Piston Travel Specifications.



18. Install the reverse clutch spacer (415).
19. Install the apply plate (416).
20. Install the clutch plates (417 and 418), starting with clutch plates (417) with outer splines, alternating with clutch plates (418) with inner splines. Refer to Clutch Plate Selection Specifications.
21. Install the reverse clutch backing plate (419).
22. Install the reverse clutch backing plate snap ring (420).

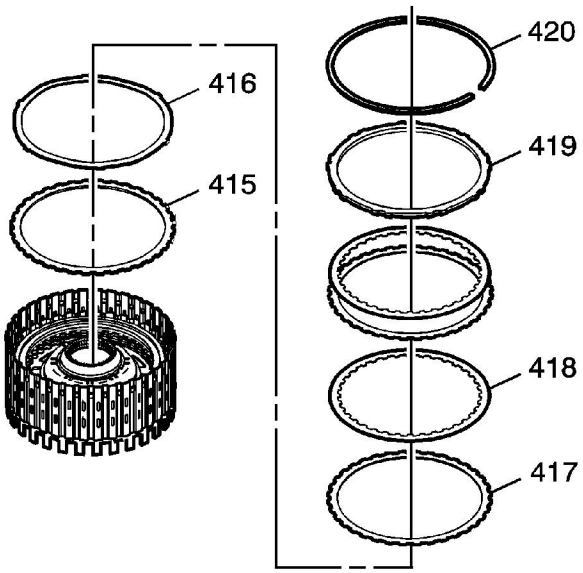


23. Measure the distance between the reverse clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H1.
24. Apply 65 PSI (448.17 kPa) of air pressure to the specified port. Measure the distance between the reverse clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H2.
25. Subtract H2 from H1 this is the clutch pack travel. Refer to Clutch Piston Travel Specifications.

Direct and Reverse Clutch Disassemble

Tools Required

- J 38734 Intermediate Spring Compressor Adapter
- J 45139 Compressor Plate



1. Remove the reverse clutch backing plate snap ring (420).
2. Remove the backing plate (419).
3. Remove the clutch plates (418 and 417). Refer to Clutch Plate Selection Specifications.
4. Remove the apply plate (416).
5. Remove the reverse clutch spacer (415).

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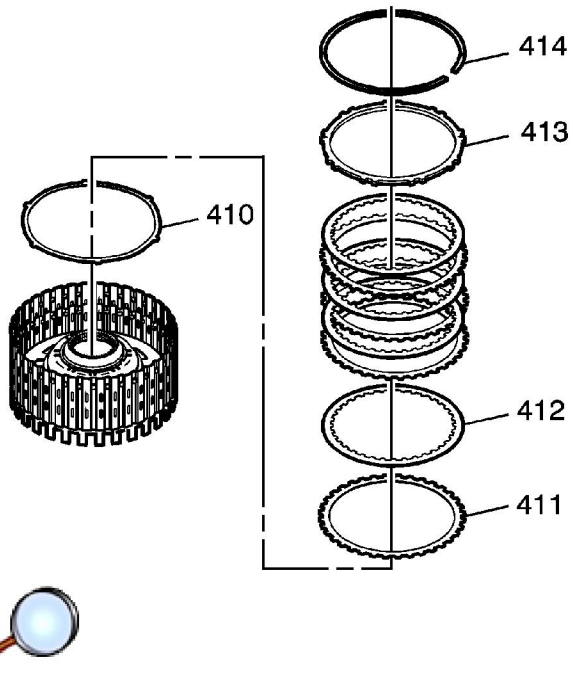
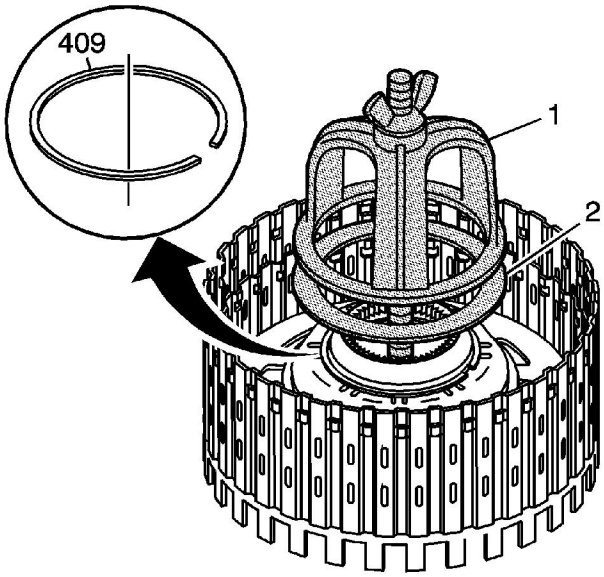
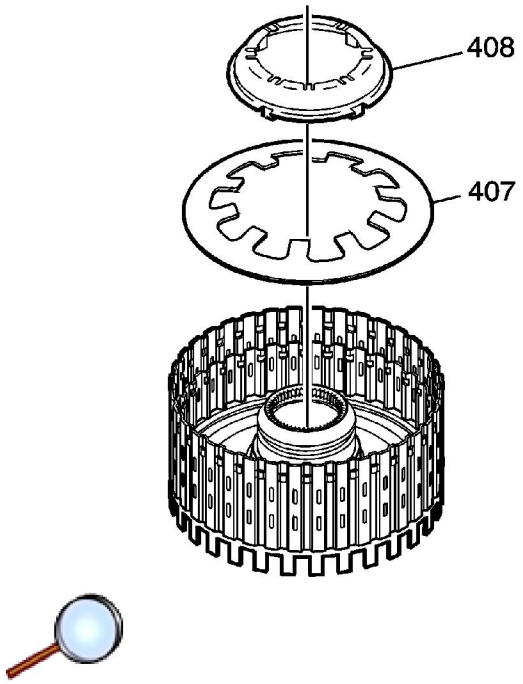


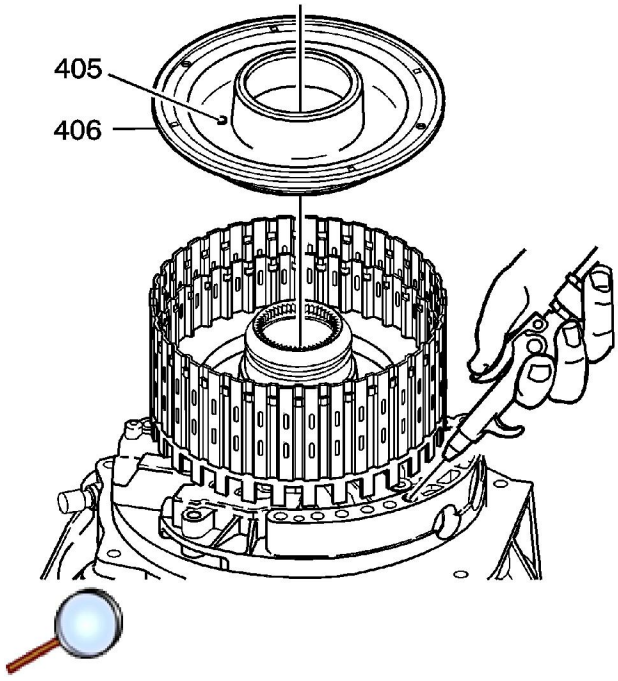
6. Remove the direct clutch backing plate snap ring (414).
7. Remove the backing plate (413).
8. Remove the clutch plates (412 and 411). Refer to Clutch Plate Selection Specifications.
9. Remove the apply plate (410).



10. Use J 38734 and J 45139 to compress the direct and reverse piston spring (407).
11. Remove the direct and reverse clutch spring snap ring (409).
12. Remove J 38734 and J 45139 .

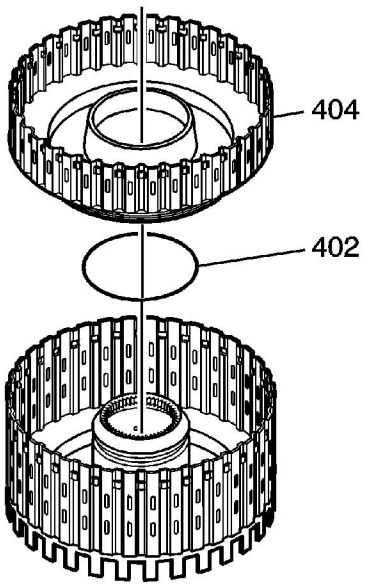


13. Remove the spring retainer (408).
14. Remove the spring (407).



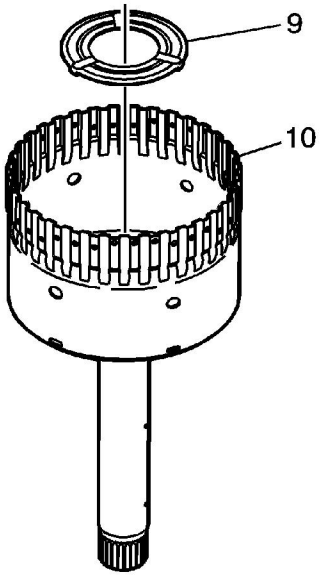
Important: It may be necessary to use air pressure to remove the piston.

15. Remove the direct clutch piston (406).

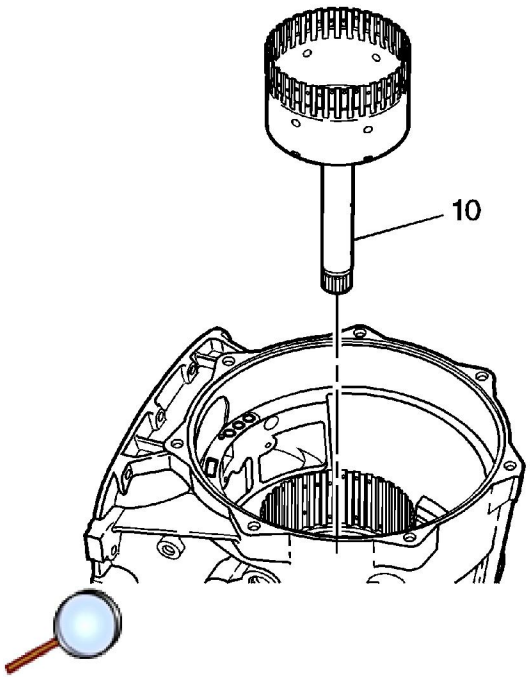


16. Remove the reverse clutch piston (404).
17. Remove the reverse clutch piston inner seal (402).

Direct Clutch Hub Assemble



1. Inspect the housing for the following:
   - Damaged or worn splines
   - Damaged or worn bushings
   - Wear, cracks and scoring on the shaft
2. Install the direct clutch housing hub thrust washer (9) into the housing (10).



3. Install the direct clutch hub housing (10) into the case.

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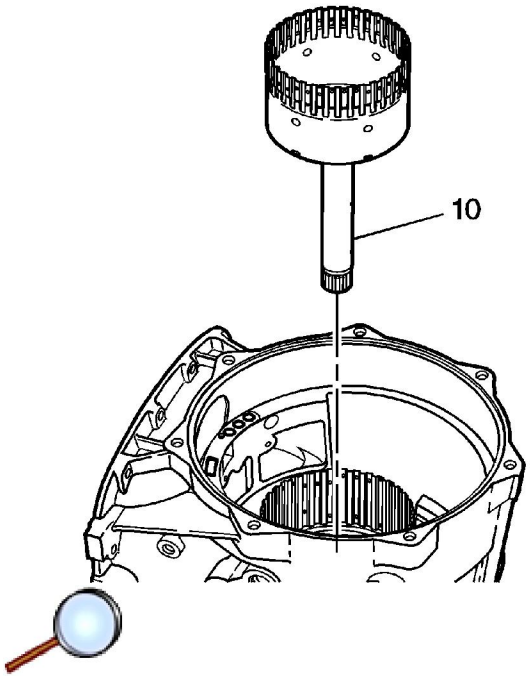
Direct Clutch Hub Removal



Remove the direct clutch hub assembly (10) from the case.

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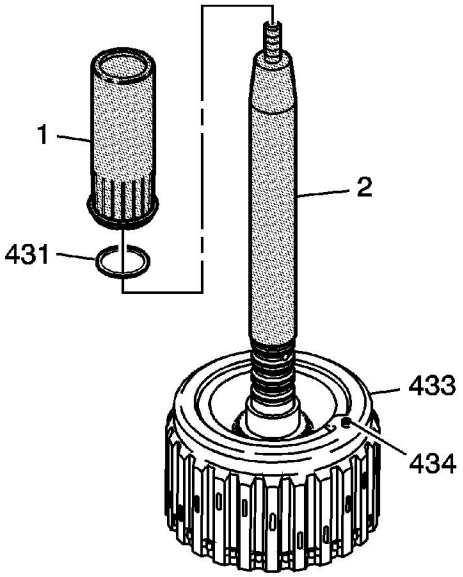
Forward and Coast Clutch Assemble

Tools Required

- J 43074 Forward Clutch Piston Spring Compressor
- J 45130-1 Seal Installer Sizer
- J 45130-2 Seal Installer Pusher
- J 45130-3 Seal Protector
- J 45132 Seal Protector
- J 45134 Seal Protector



1. Inspect the forward clutch housing (433) for the following:
   - Plugged feed passages
   - Damaged ball check valve (434)
   - Damaged or worn splines
   - Seal ring groove nicks or burrs
   - Cracked or blocked fluid passages in the input shaft
   - Damaged or worn clutch plates
2. Inspect the input shaft fluid seals (431, 432) for damaged or worn seals.
3. Slide J 45130-3 (2) over the input shaft, and position J 45130-3 (2) at the seal groove closest to the housing. Coat J 45130-3 (2) with transmission fluid.
4. Guide a NEW seal (431) onto J 45130-3 (2) and slide the seal into the groove with J 45130-2 (1).

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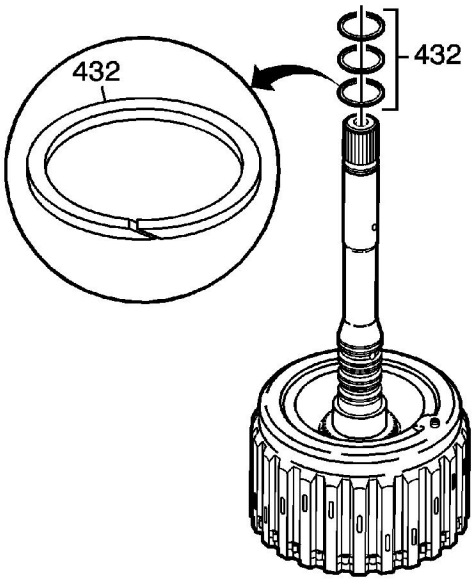
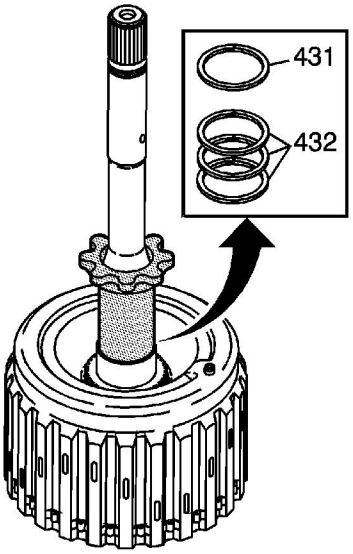
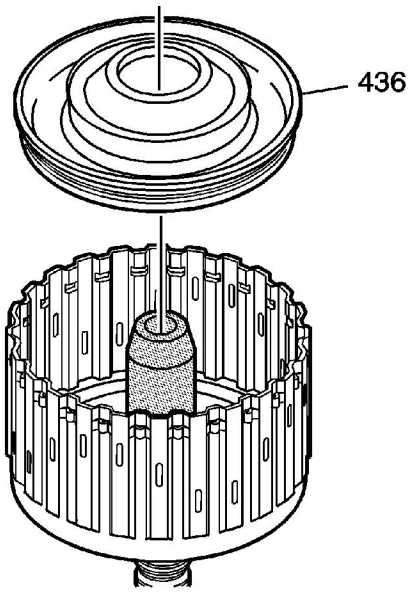


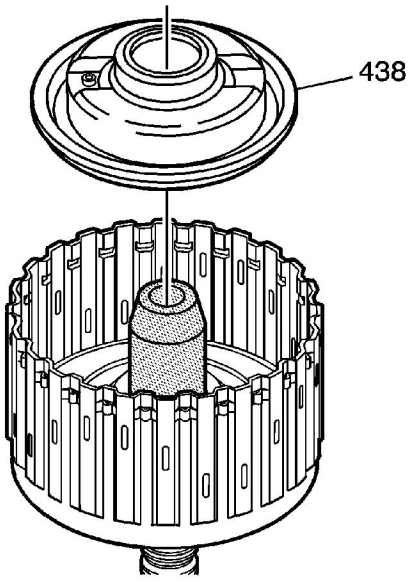
5. Remove J 45130-3 (2).
6. Install the input shaft fluid seals (432).



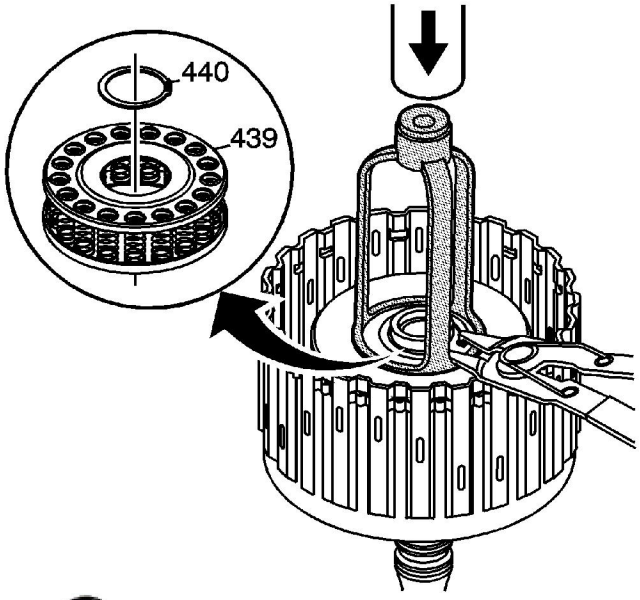
7. Size the seals (431, 432) with J 45130-1 .
8. Leave J 45130-1 in place for at least five minutes. If possible, leave J 45130-1 in place until you install the assembly into the transmission case.



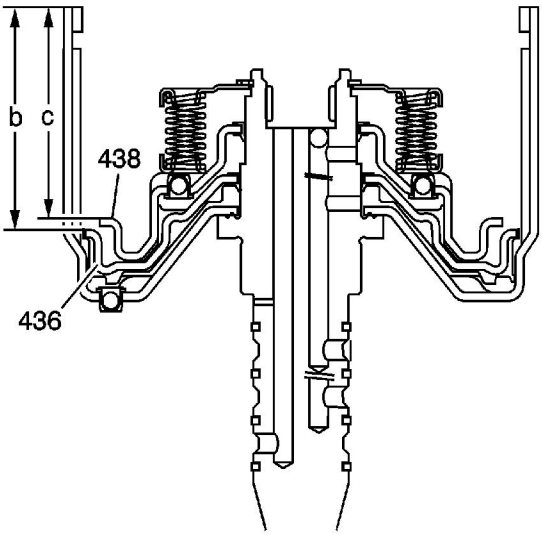
9. Inspect the forward piston and the coast clutch piston for the following:
   - Cracks or damage to seal grooves
   - Wear on the piston
   - Damaged or worn clutch plates
10. Use J 45134 to install the forward clutch piston (436).



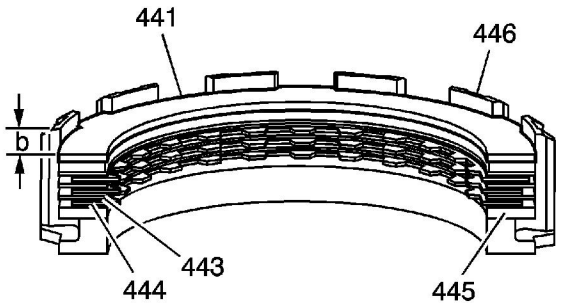
11. Use J 45132 to install the coast clutch piston (438).



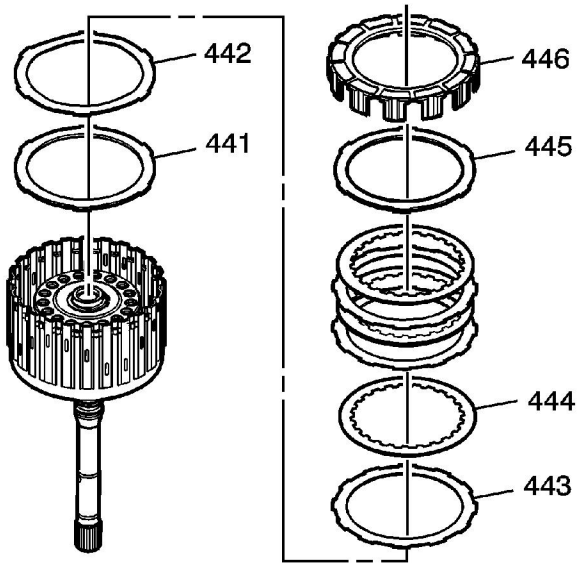
12. Inspect the forward and coast clutch piston spring for the following:
    - Damaged cage
    - Distorted or missing springs
13. Install the piston spring (439).
14. Use J 43074 to compress the spring and install the snap ring (440).



15. Measure the distance from the top of the forward clutch housing to the coast clutch piston (438), record this as dimension C.
16. Measure the distance from the top of the forward clutch housing to the forward clutch piston (436), record this as dimension B.
17. Subtract dimension C from dimension B. This is now dimension A.

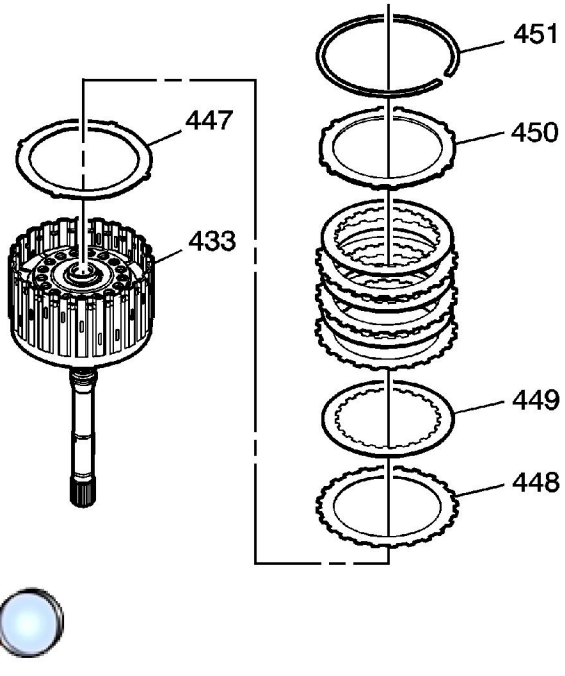


18. Install the coast clutch backing plate (445) into the coast clutch housing (446).
19. Install the coast clutch plates into the coast clutch housing (446). Starting with the coast clutch plate (443) with outer splines. Alternating with the coast clutch plate (444) with inner splines. Refer to Clutch Plate Selection Specifications.
20. Install the coast clutch apply plate into the coast clutch housing (446).
21. Install the coast clutch spacer plate (441) into the coast clutch housing (446).
22. Measure the distance from the top of the coast clutch housing (446) to the top of the coast clutch spacer plate (441), record this as dimension B.
23. Subtract dimension B from dimension A, this is clutch pack travel.

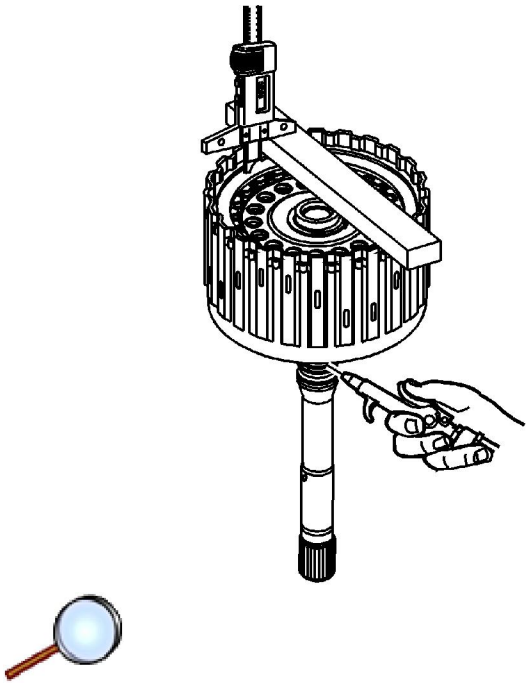


24. Install the coast clutch spacer plate (441).
25. Install the coast clutch apply plate (442).
26. Install the coast clutch plates. Starting with the coast clutch plate (443) with the outer splines. Refer to Clutch Plate Selection Specifications.
27. Alternating with the coast clutch plate (444) with inner splines.

28. Install the coast clutch backing plate (444).
29. Install the coast clutch housing (446).



30. Install the forward clutch apply plate (447).
31. Install the forward clutch plates. Starting with the forward clutch plate (448) with outer splines. Alternating with the forward clutch plate (449) with inner splines. Refer to Clutch Plate Selection Specifications.
32. Install the forward clutch backing plate (450).
33. Install the forward clutch backing plate snap ring (451).



34. Measure the distance between the forward clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H1.
35. Apply air pressure to the specified port. Measure the distance between the forward clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H2.
36. Subtract H2 from H1 this is the clutch pack travel. Refer to Clutch Piston Travel

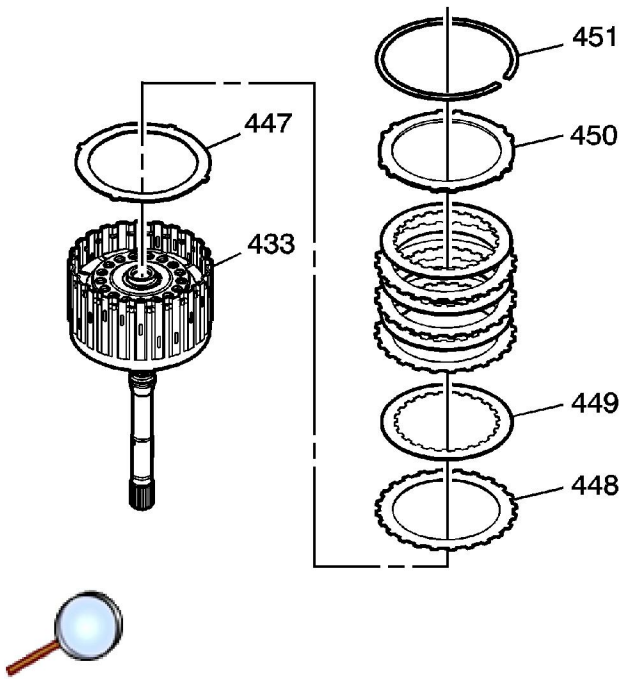
Specifications.

37. At this time you do not install the forward and coast clutch assembly into the transmission case. Set aside until told to do so.

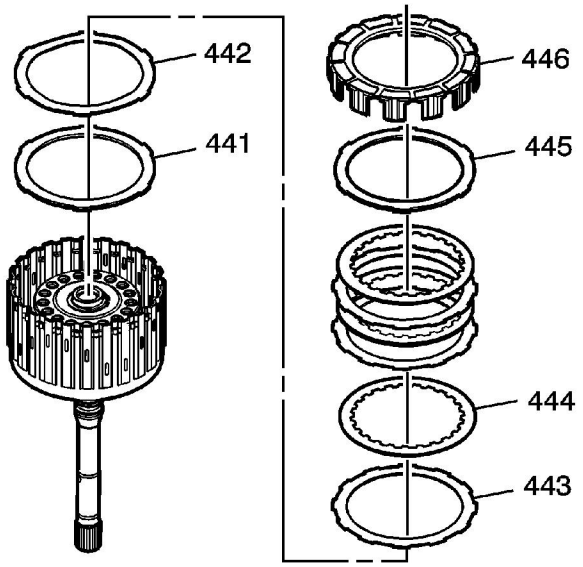
Forward and Coast Clutch Disassemble

Tools Required

J 43074 Forward Clutch Piston Spring Compressor



1. Remove the forward clutch backing plate retainer ring (451).
2. Remove the forward clutch backing plate (450).
3. Remove the forward clutch plates (448 and 449). Refer to Clutch Plate Selection Specifications.
4. Remove the forward apply plate (447).



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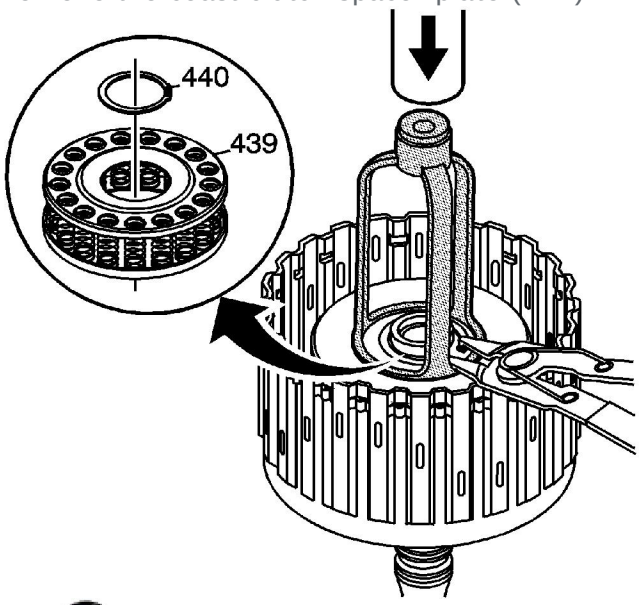
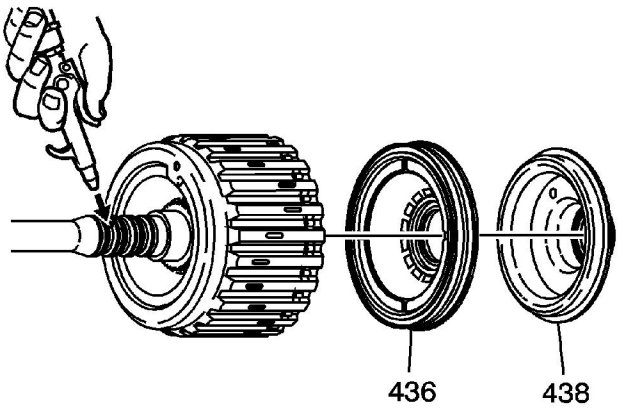
5. Remove the coast clutch housing (446).
6. Remove the coast backing plate (445).
7. Remove the coast clutch plates (443, 444). Refer to Clutch Plate Selection Specifications.
8. Remove the coast apply plate (442).
9. Remove the coast clutch spacer plate (441).

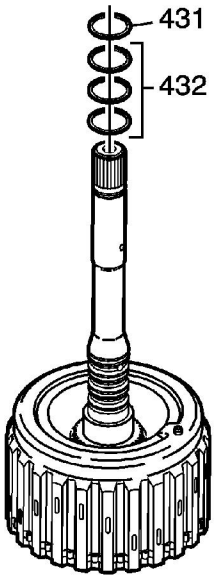


10. Use the J 43074 to compress the forward and coast clutch spring (439).
11. Remove the snap ring (440).
12. Remove J 43074 .
13. Remove the clutch spring (439).



Important: It may be necessary to apply air pressure to remove the piston.

14. Remove the coast clutch piston (438).
15. Remove the forward clutch piston (436).

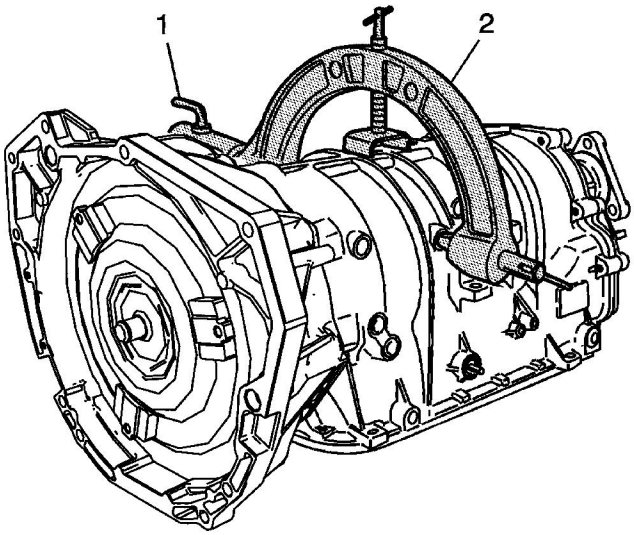


16. Remove the input shaft fluid seal (431).
17. Remove the input shaft fluid seals (432).

Holding Fixture Installation

Tools Required

J 8763-B Holding Fixture and Base



1. Install the J 8763-B onto the transmission.
2. Install the transmission onto the holding fixture tool base and use the pin to lock the holding fixture in place.

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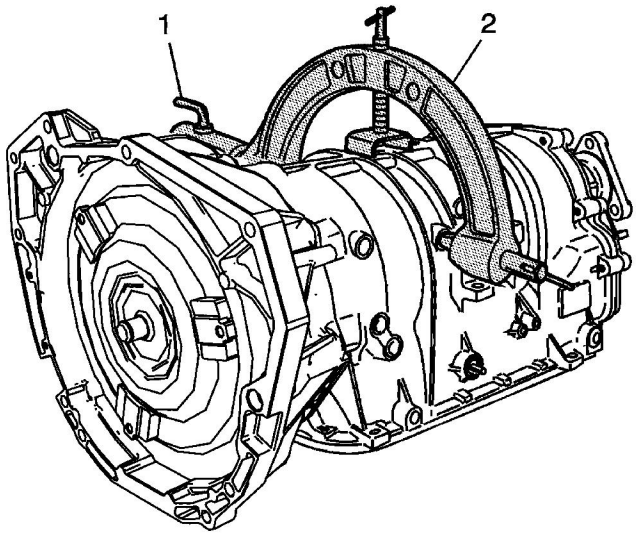
Holding Fixture Removal



Remove J 8763-B from the transmission.

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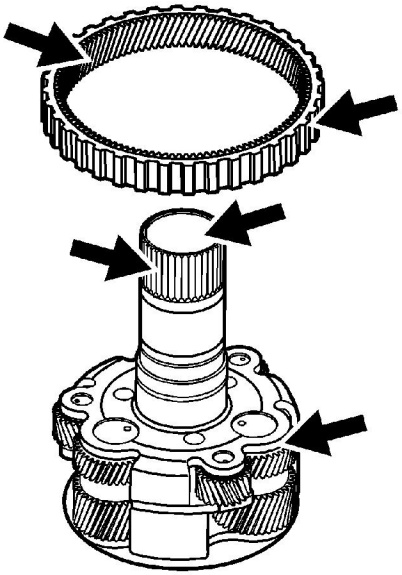
Input and Reaction Carrier Assemble



1. Inspect the reaction internal gear and the 2nd clutch sprag for the following:
   - Damaged or worn gear teeth
   - Damaged or worn splines
2. Inspect the input and reaction carrier for the following:
   - Damaged or worn teeth
   - Damaged or worn splines
   - Damaged or worn bushings
   - Damaged or worn bearings

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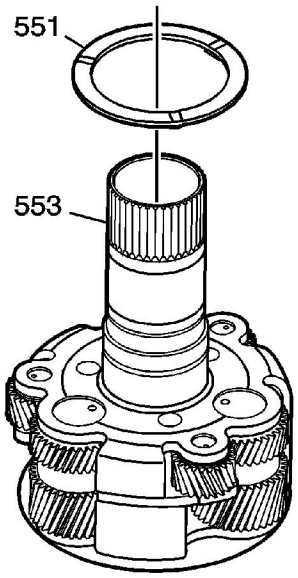
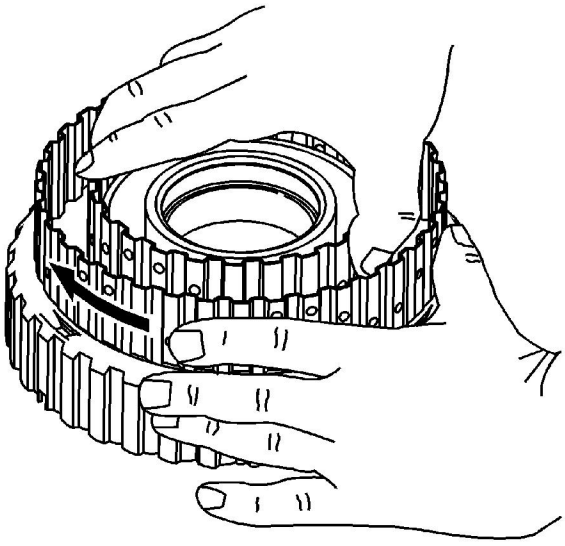
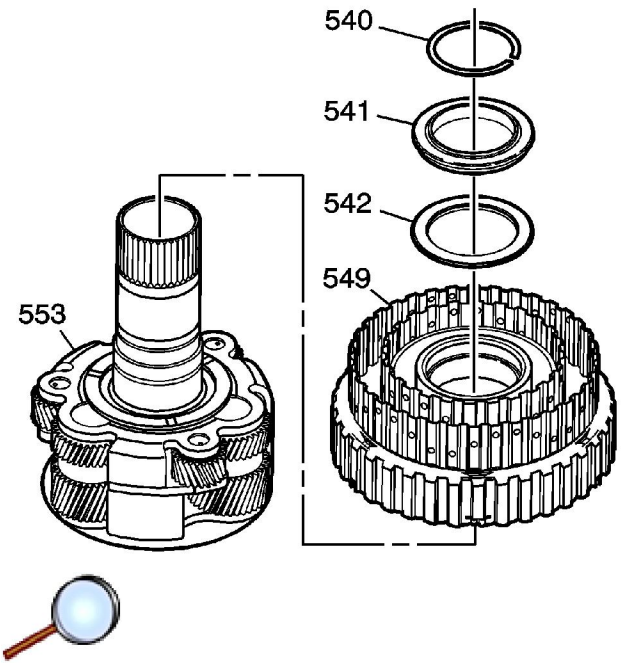


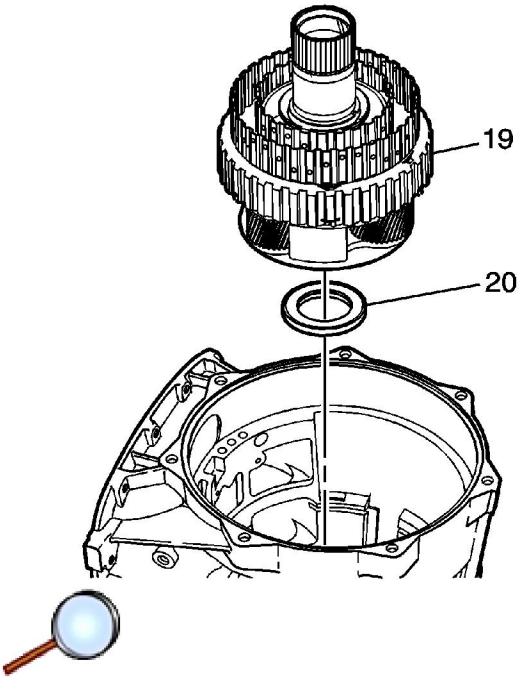
3. Using lubricant install the reaction internal gear flange washer (551).



4. Check that the 2nd clutch sprag rotation freewheels and locks up in the correct direction.

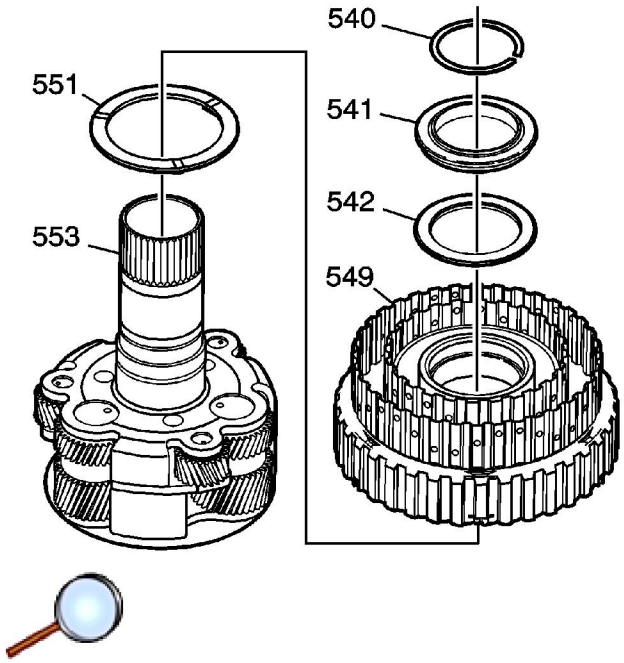


5. Install the 2nd clutch sprag (549) onto the input and reaction carrier (553).
6. Install the 2nd clutch roller inner race bearing (542).
7. Install the input and reaction bearing (541).
8. Install the input and reaction carrier snap ring (540) .



9. Install the input and reaction carrier thrust bearing (20) into the case.
10. Install the input and reaction carrier assembly (19) into the case.

Input and Reaction Carrier Disassemble



1. Remove the snap ring (540).
2. Remove the input and reaction bearing (541).
3. Remove the 2nd clutch roller inner race bearing (542).
4. Remove the 2nd clutch sprag (549).
5. Remove the reaction internal gear flange washer (551).

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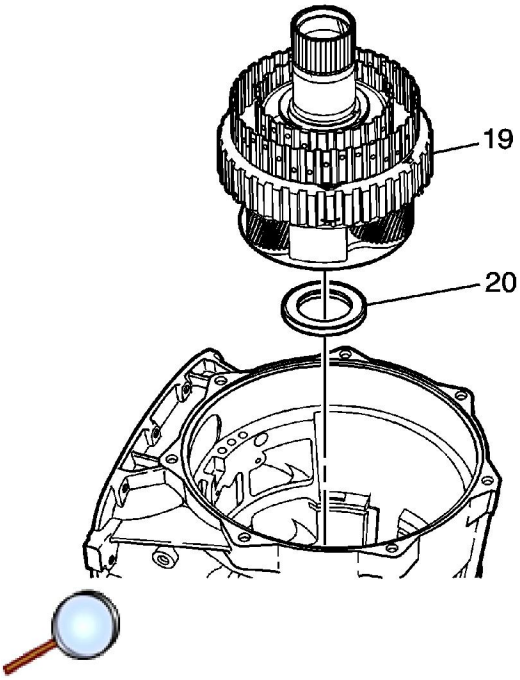
Input and Reaction Carrier Removal



1. Remove the input and reaction carrier (19) from the case.
2. Remove the input and reaction carrier thrust bearing (20) from the case.

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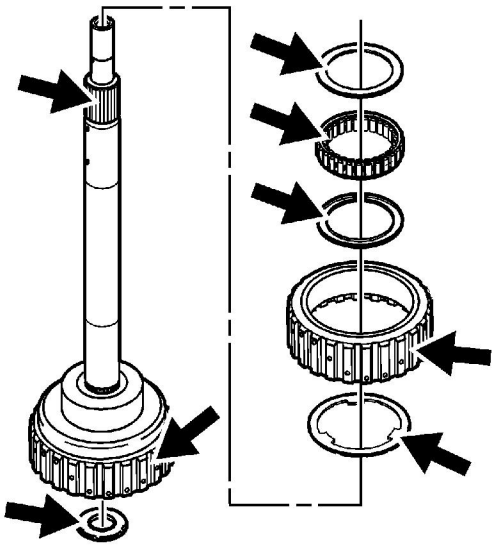
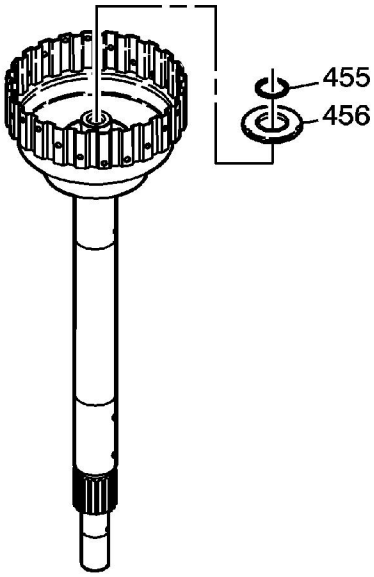
Input Sun Gear Shaft Assemble



1. Inspect the outer race and input shaft for the following:
   - Damaged or worn splines
   - Scoring inside the diameter of the race
   - Wear or cracks
2. Inspect the sprag elements for flat spots.
3. Inspect the bearing cage for distortion or broken ribbon tabs.
4. Inspect the inner bearing for cracks.



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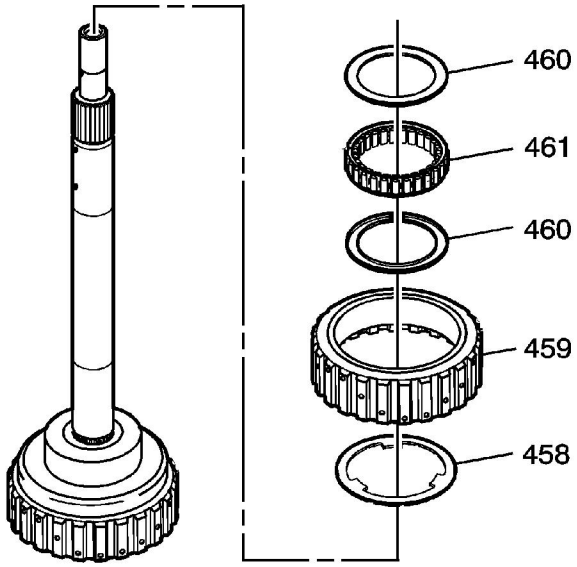
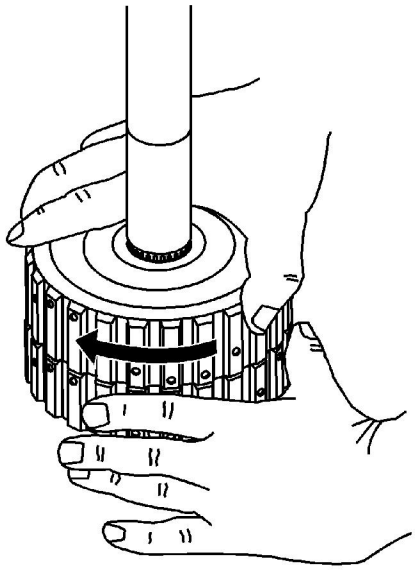
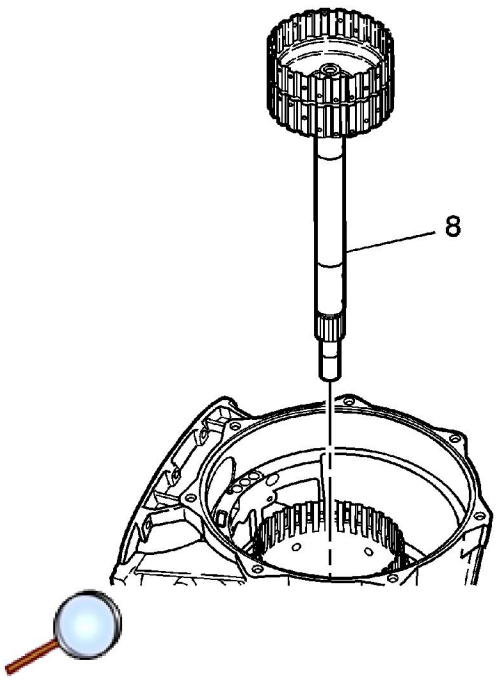
5. Install the inner roller bearing (456).
6. Install the NEW inner race thrust ring (455).



7. Install the outer race washer (458) onto the outer race (459).
8. Install the rataining rings (460) and the forward clutch sprag (461) onto the outer race (459).
9. Install the sprag assembly (460, 461 and 459) onto the sun gear shaft (457).

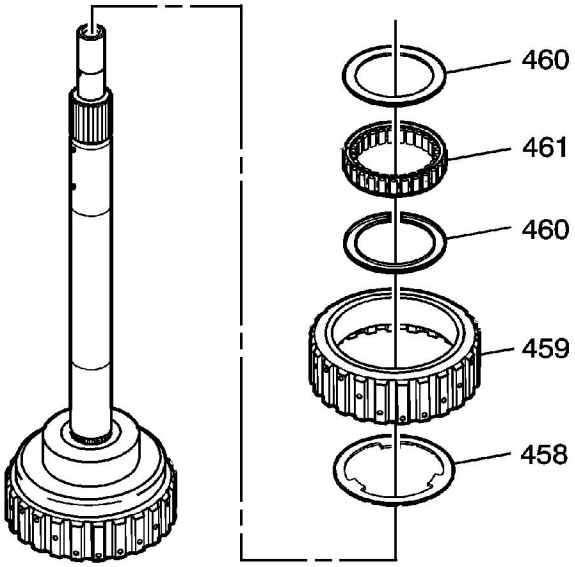


10. Check that the forward clutch sprag rotation freewheels and locks up in the correct direction.

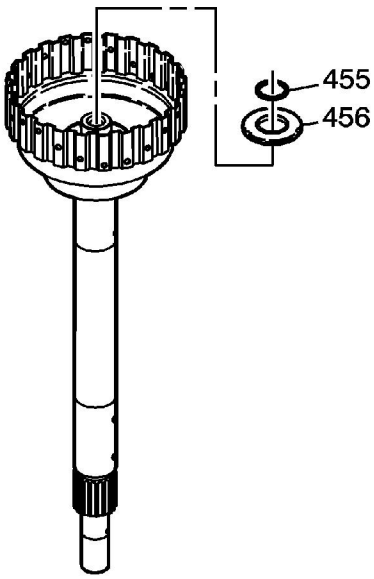


11. Install the input sun gear shaft (8) into the case (24).

Input Sun Gear Shaft Disassemble



1. Remove the forward clutch sprag outer race (459).
2. Remove the forward clutch outer race washer (458).
3. Remove the forward clutch sprag assembly retaining rings (460).
4. Remove the forward clutch sprag (461).



5. Remove the forward clutch roller inner race thrust ring (455).
6. Remove the inner bearing (456).

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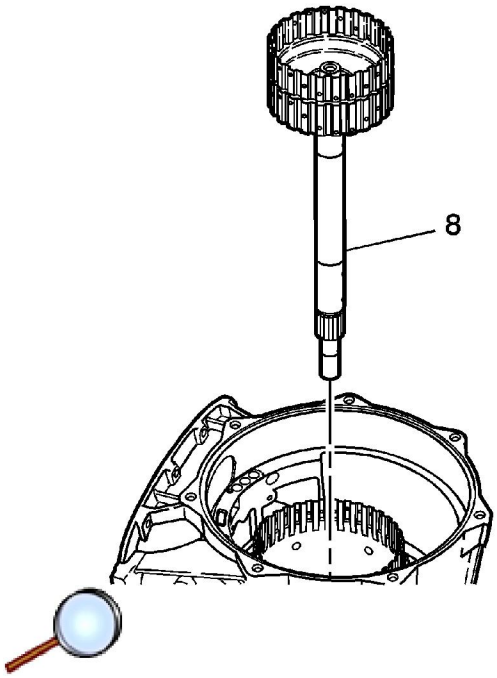
Input Sun Gear Shaft Removal



Remove the input sun gear shaft (8) from the case.

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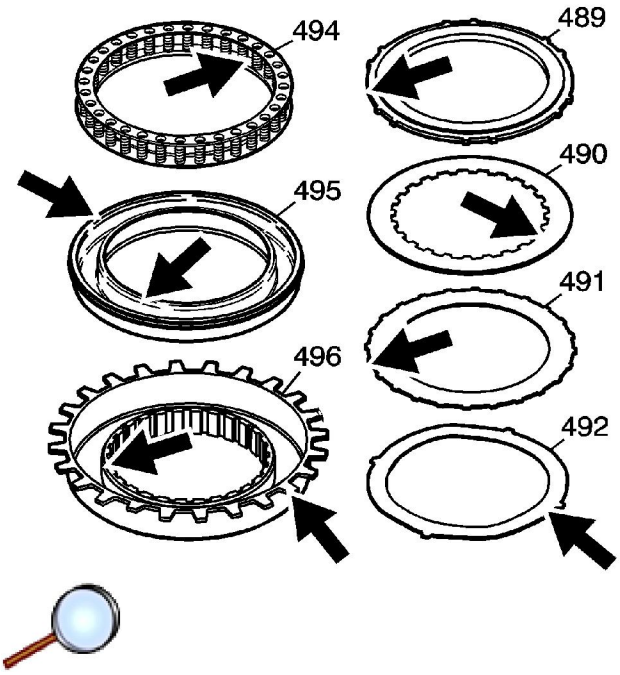
Intermediate and Overdrive and Reverse Clutch Hub Assemble

Tools Required

- J 23327 Clutch Spring Compressor
- J 44764 Clutch Spring Compressor
- J 45126 Snap Ring Pliers
- J 45135 Seal Protector



1. Inspect the housing for the following:
   - Plugged feed passages
   - Worn or damaged splines
   - Damaged or worn springs
   - Damaged or worn pistons
   - Worn or damaged clutch plates

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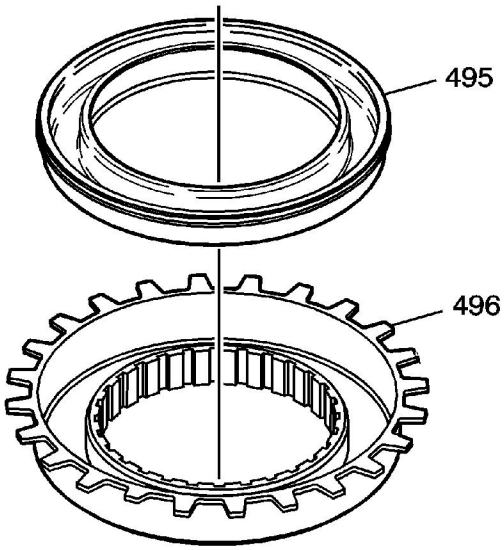
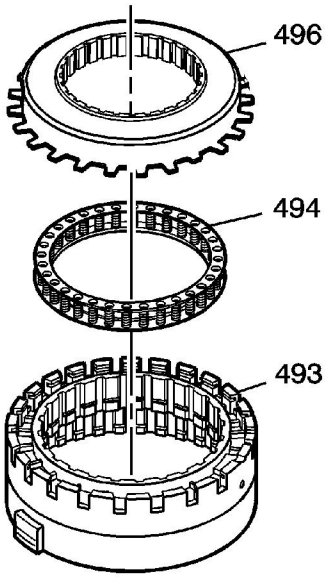
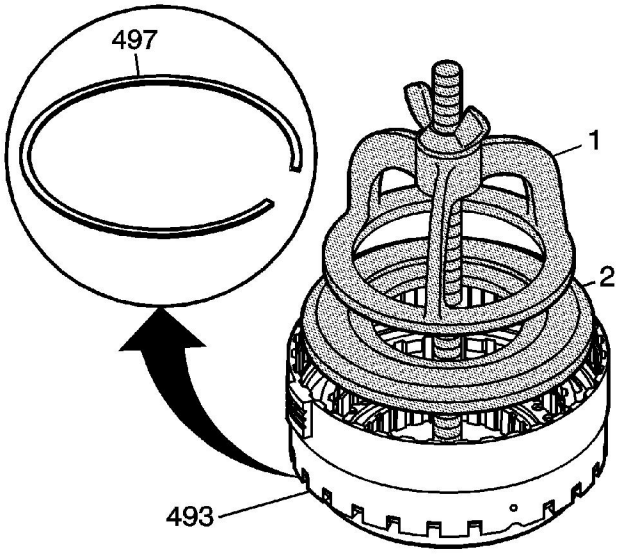


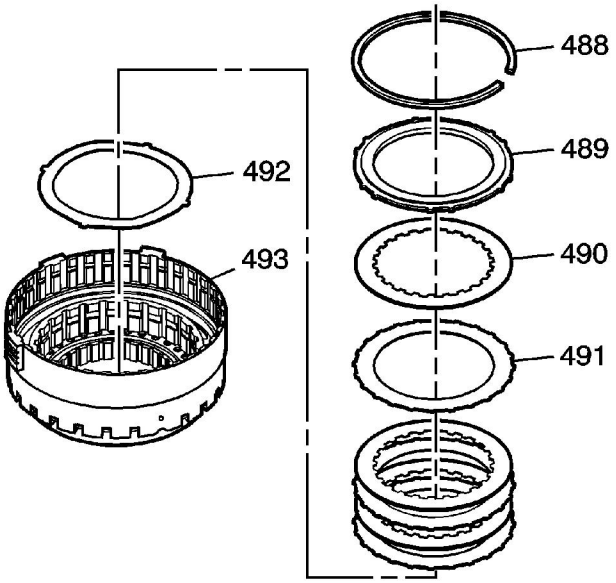
2. Install the intermediate piston (495) into the intermediate clutch housing (496).



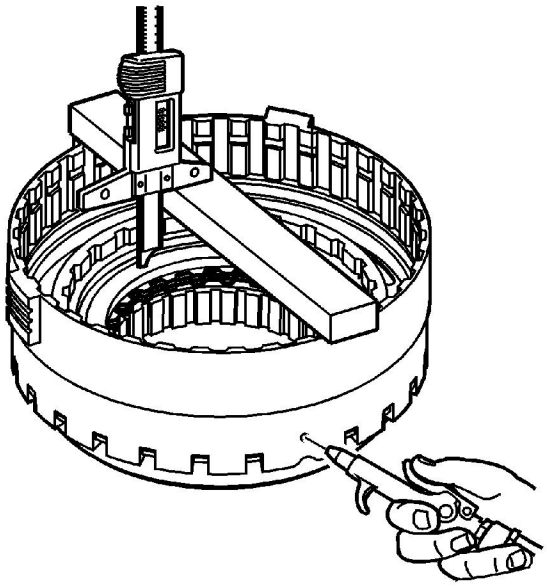
3. Install the intermediate clutch spring (494).
4. Install the intermediate housing (496).



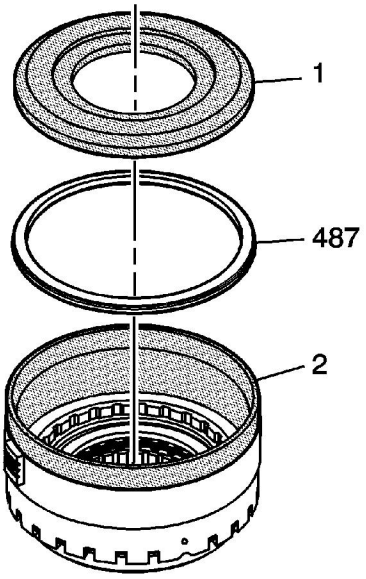
5. Use J 44764 and J 23327 to compress the housing.
6. Install the intermediate clutch housing retainer ring (497).
7. Remove J 44764 and J 23327 .



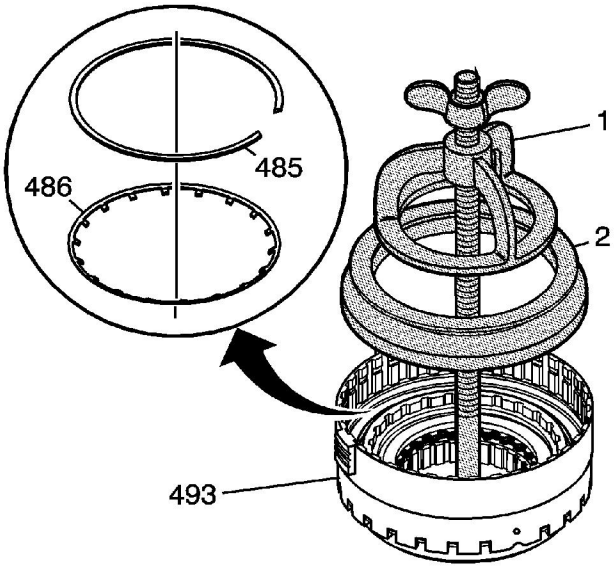
8. Install the intermediate apply plate (492).
9. Install the intermediate clutch plates. Starting with the intermediate clutch plates (491) with external splines. Alternating with the intermediate clutch plates (490) internal splines. Refer to Clutch Plate Selection Specifications.
10. Install the backing plate (489).
11. Install the intermediate backing plate retainer ring (488).



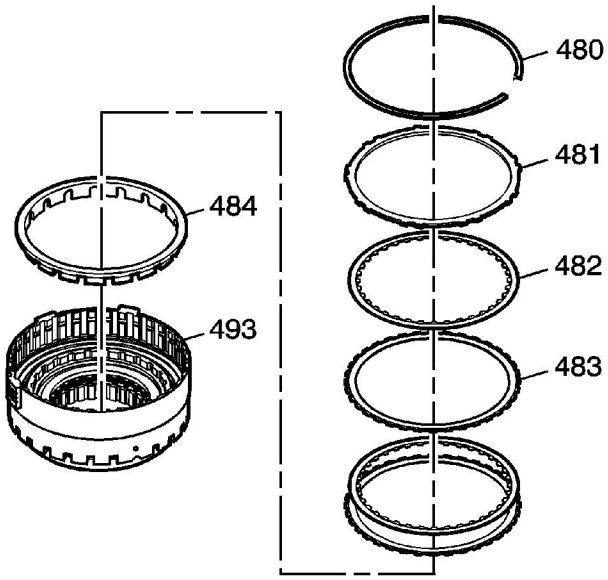
12. Measure the distance between the intermediate clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H1.
13. Apply 65 PSI (448.17 kPa) of air pressure to the specified port. Measure the distance between the intermediate clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H2.
14. Subtract H2 from H1 this is the clutch pack travel. Refer to Clutch Piston Travel Specifications.



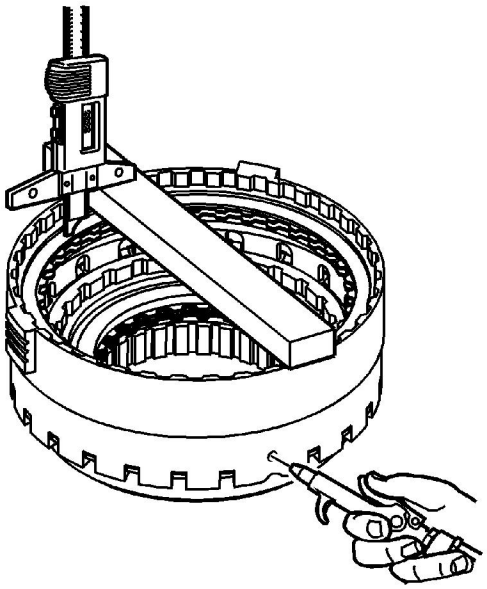
15. Use J 45135 (2) and J 44764 (1) to install the overdrive piston (487).



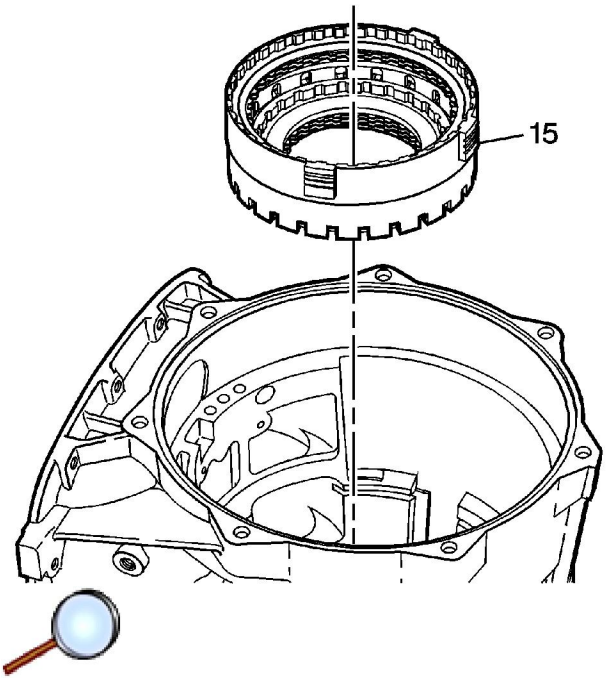
16. Install the overdrive piston spring (486).
17. Use J 44764 and J 23327 to compress the overdrive clutch piston spring (486).
18. Install the overdrive clutch spring retainer (485).
19. Remove J 44764 and J 23327 .



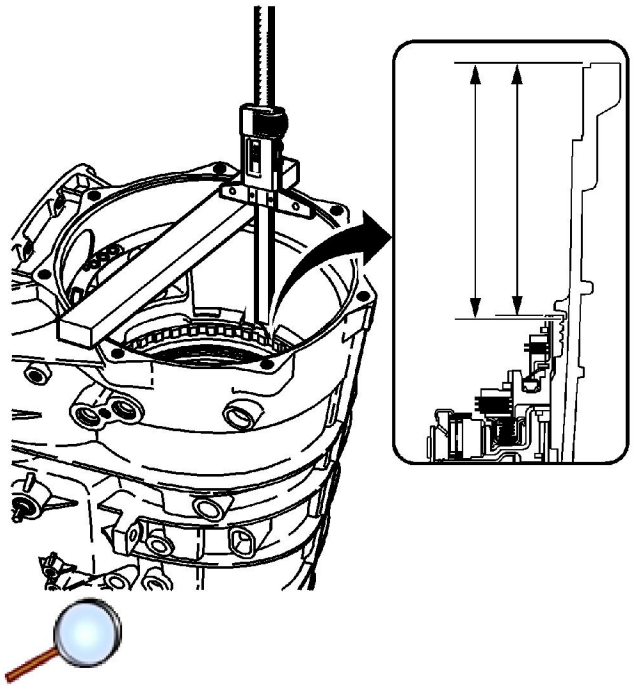
20. Install the overdrive clutch spacer (484).
21. Install the overdrive clutch plates. Starting with the overdrive clutch plates (483) with external splines. Alternating with the overdrive clutch plates (482) with internal splines. Refer to Clutch Plate Selection Specifications.
22. Install the overdrive backing plate (481).
23. Install the overdrive clutch retainer ring (480).



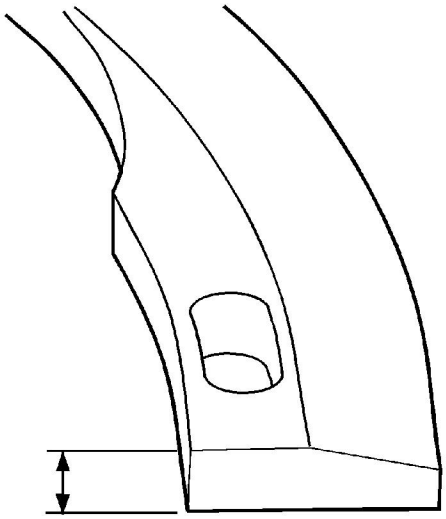
24. Measure the distance between the overdrive clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H1.
25. Apply 65 PSI (448.17 kPa) of air pressure to the specified port. Measure the distance between the overdrive clutch backing plate and the bottom of the gage bar. Measure three times in different locations on the backing plate. Record this as H2.
26. Subtract H2 from H1 this is the clutch pack travel. Refer to Clutch Piston Travel Specifications.



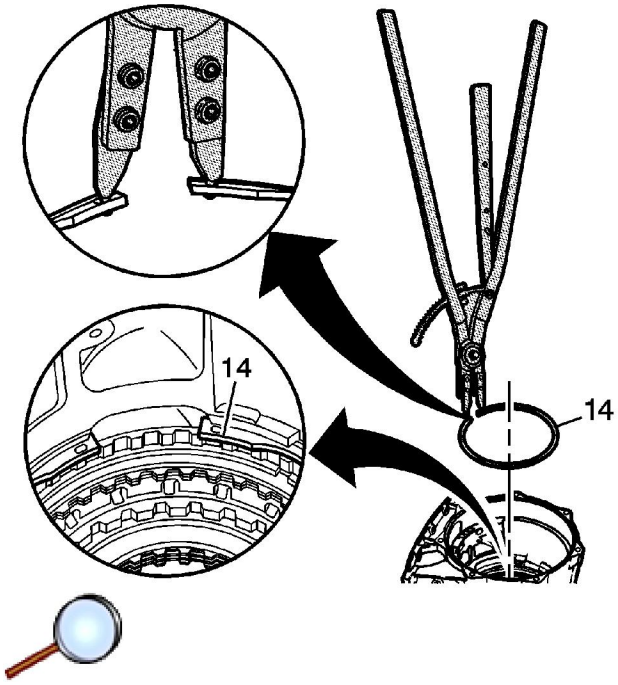
27. Install the overdrive clutch housing (15) into the case.



28. Measure the distance from the bottom of the gauge bar to the top of the overdrive and intermediate clutch. Record this as M1.
29. Measure the distance from the bottom of the gage Bar to the bottom of the intermediate and overdrive retainer ring groove in the case. Record this as M2.
30. Subtract M2 from M1. This will be dimension M.



31. Measure the intermediate and overdrive clutch housing retaining ring (14). Refer to Intermediate and Overdrive Clutch Housing Retaining Ring Specifications for the correct size washer.



Caution: Use care when removing or installing the snap ring. Be sure the J 45126 snap ring pliers are installed properly onto the snap ring or bodily injury may occur.

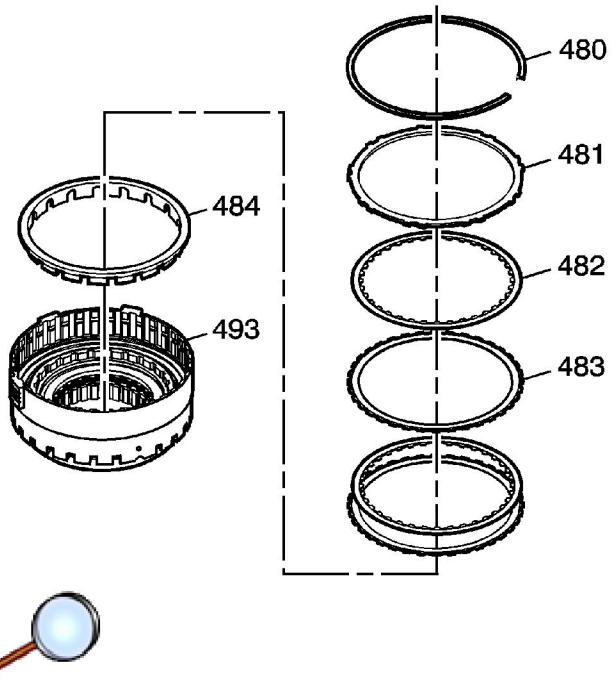
Important: If housings is replaced a measurement must be taken for end play.

32. Using J 45126 install the intermediate and overdrive clutch housing retainer ring (14) into the case.

Intermediate and Overdrive and Reverse Clutch Hub Disassemble

Tools Required

- J 23327 Clutch Spring Compressor
- J 44764 Clutch Spring Compressor



1. Remove the overdrive clutch snap ring (480) from the overdrive clutch housing (493).
2. Remove the overdrive clutch backing plate (481) from the overdrive clutch housing (493).
3. Remove the overdrive clutch plates (482 and 483). Refer to Clutch Plate Selection Specifications.
4. Remove the overdirve clutch spacer (484) from the overdrive clutch housing (493).

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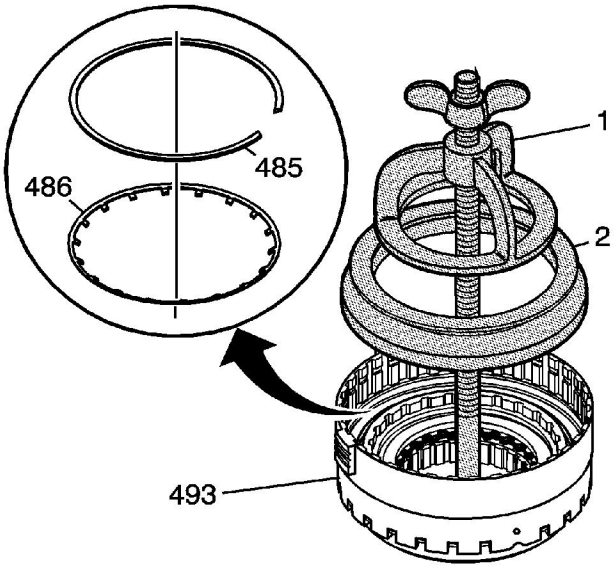
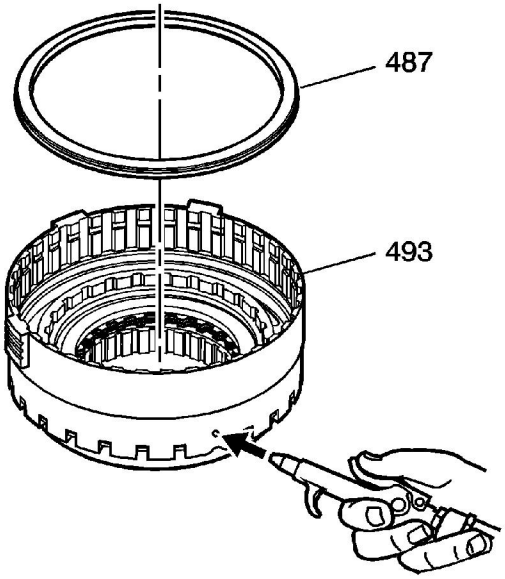
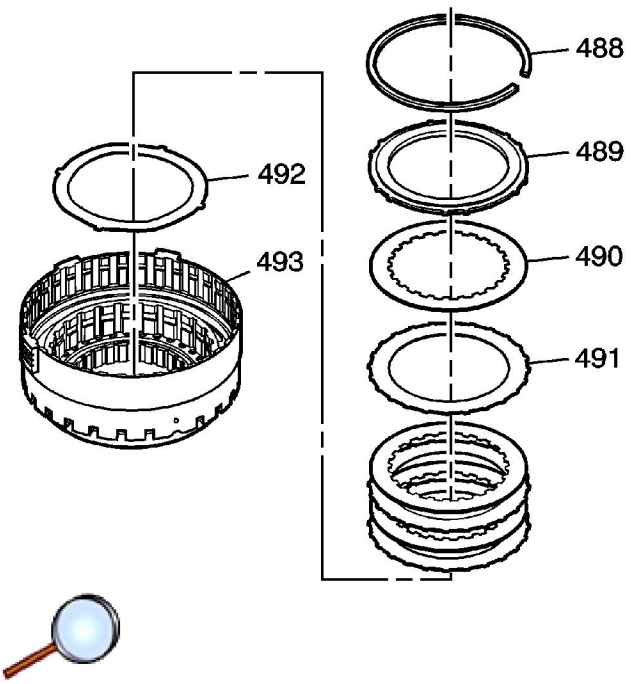


5. Use J 44764 and J 23327 to compress the overdrive clutch piston spring (486).
6. Remove the overdrive clutch piston spring snap ring (485) from the overdrive clutch housing (493).
7. Remove J 44764 and J 23327 from the overdrive clutch housing (493).
8. Remove the overdrive clutch spring (486) from the overdrive clutch housing (493).

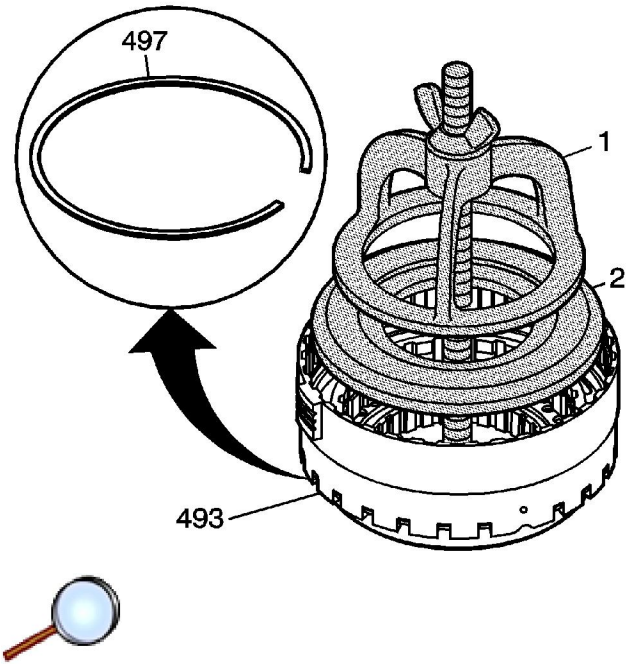


Important: It may be necessary to use air pressure to remove the piston.

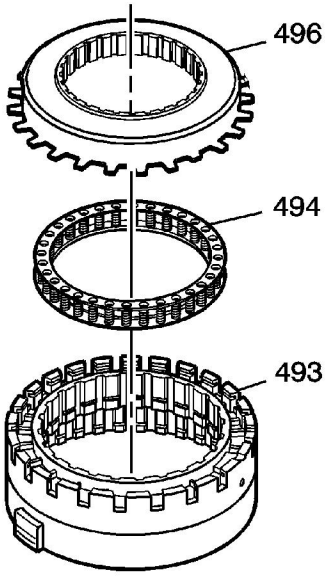
9. Remove the overdrive clutch piston (487) from the overdrive clutch housing (493).



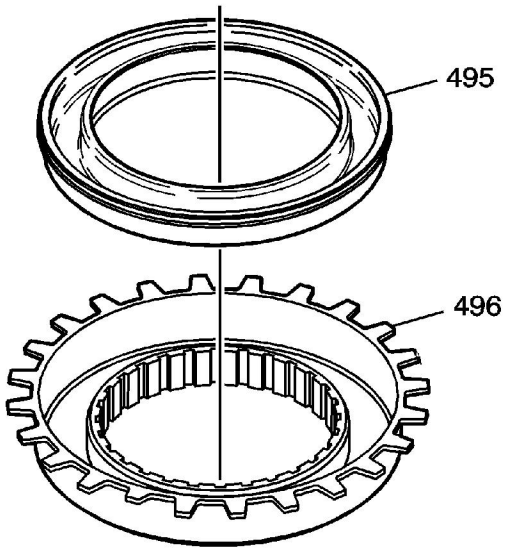
10. Remove the intermediate clutch backing plate snap ring (488) from the overdrive clutch housing (493).
11. Remove the intermediate clutch backing plate (489) from the overdrive clutch housing (493).
12. Remove the intermediate clutch plates (490 and 491) from the overdrive clutch housing (493). Refer to Clutch Plate Selection Specifications.
13. Remove the intermediate clutch apply plate (492) from the overdrive clutch housing (493).



14. Use J 44764 and J 23327 to compress the intermediate clutch housing (496).
15. Remove the intermediate clutch housing snap ring (497) from the overdrive clutch housing (493).

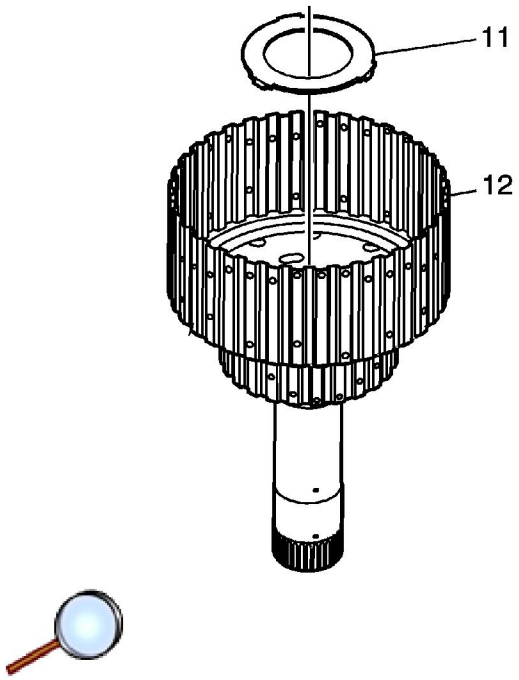


16. Remove J 44764 and J 23327 from the overdrive clutch housing (493).
17. Remove the intermediate clutch housing (496), and the intermediate clutch spring (494) from the overdrive clutch housing (493).

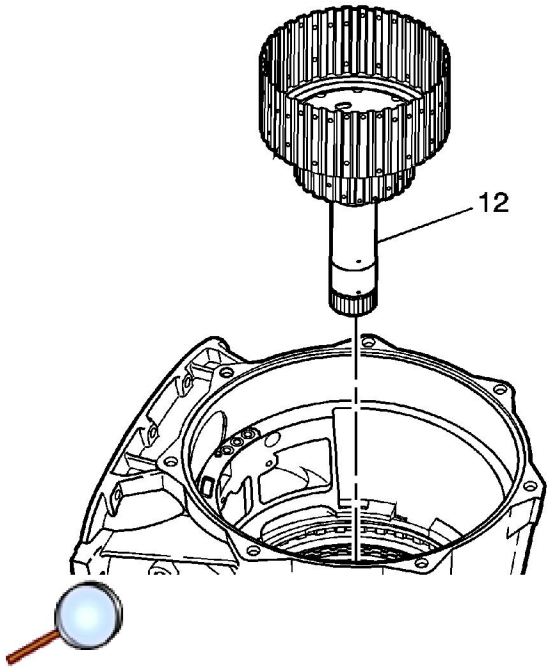


18. Remove the intermediate clutch piston (495) from the overdrive clutch housing (496).

Intermediate Clutch Sprag Assemble



1. Apply J 36850 to the input and reaction carrier inner shaft thrust washer (11) and install into the intermediate sprag clutch assembly (12).



2. Install the intermediate sprag clutch assembly (12) into the case.

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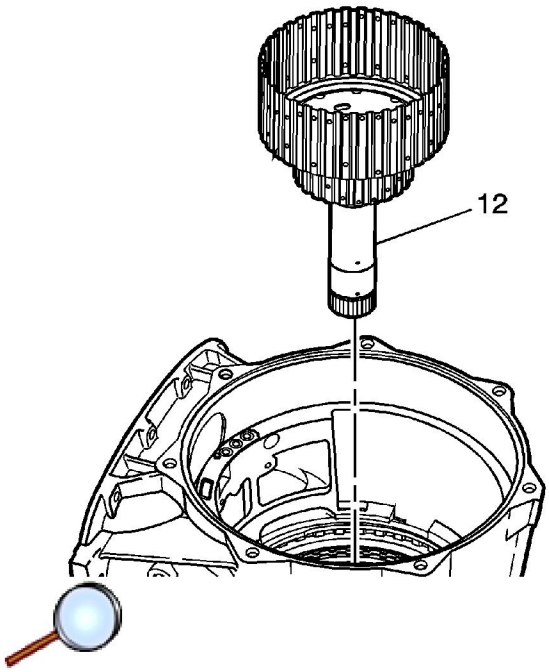
Intermediate Clutch Sprag Assembly Removal



Remove the intermediate clutch sprag assembly (12) from the case.

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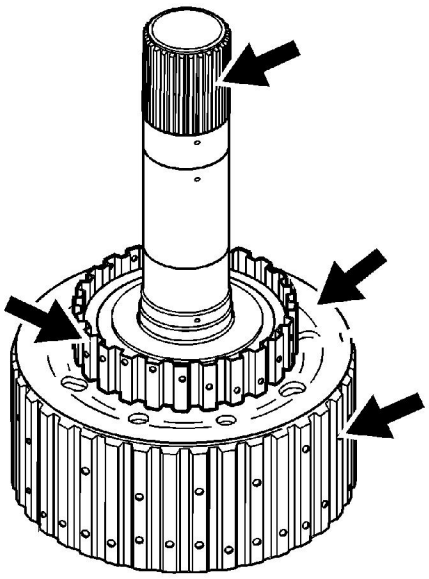
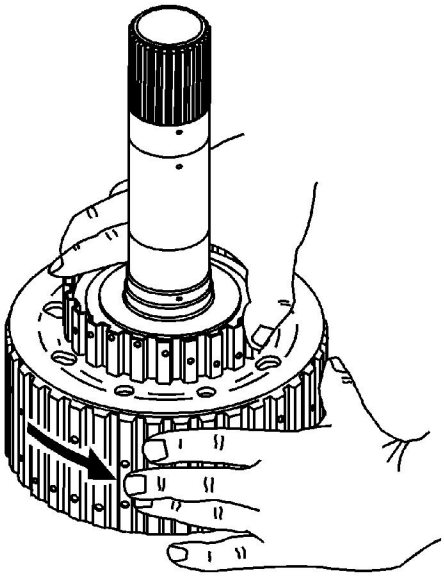
Intermediate Clutch Sprag Inspection



1. Inspect the intermediate sprag clutch for the following conditions:
   - Scoring
   - Wear or cracks



2. Check that the intermediate sprag clutch rotation freewheels and locks up in the correct direction.

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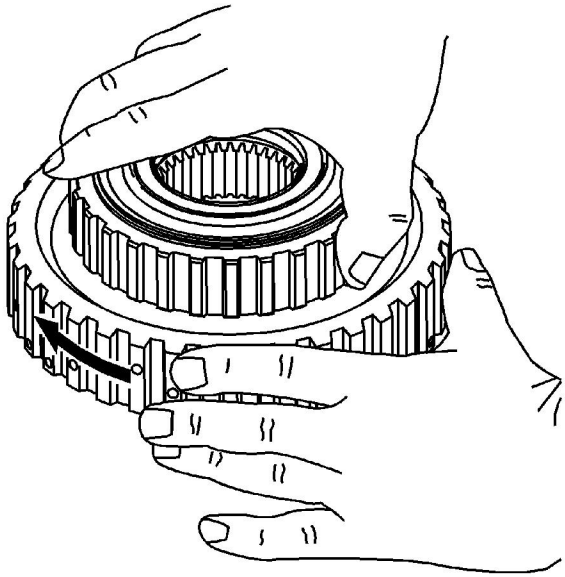
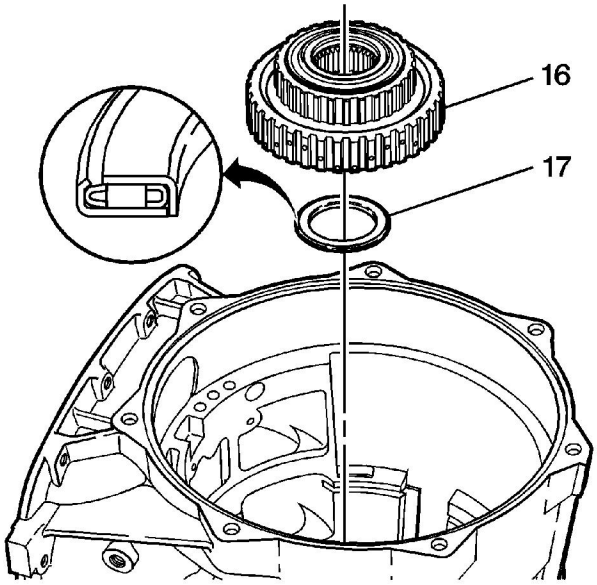
Low Clutch Sprag Assemble



1. Inspect the low clutch sprag for the following:
   - Damaged or worn splines
   - Scoring on the inside diameter of the races
   - Wear or cracks
2. Check that the low clutch sprag rotation freewheels and locks up in the correct direction.



3. Install the low clutch roller thrust bearing (17).
4. Install the low clutch sprag (16) into the case (24).

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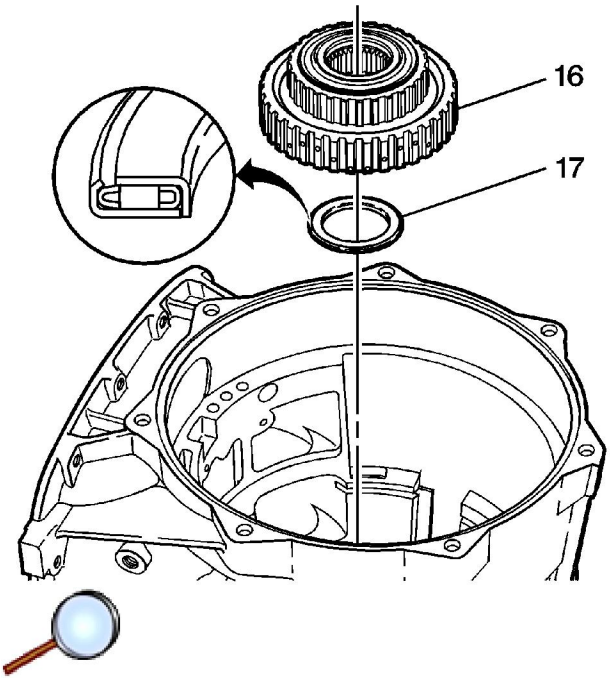
Low Clutch Sprag Removal



1. Remove the low clutch sprag (16) from the case.
2. Remove the low clutch roller thrust bearing (17).

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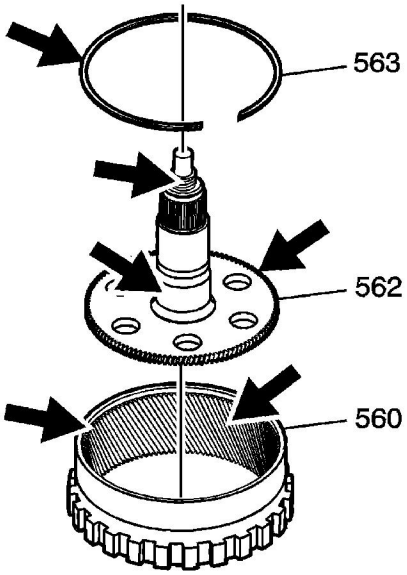
Output Shaft and Rear Internal Ring Gear Assemble



1. Inspect the output shaft (562) and the rear internal gear (560) for the following:
   - Damaged or worn bushings
   - Damaged splines
   - Damaged or worn snap ring (563)
   - Damaged or worn gear teeth
   - Damaged or worn snap ring groove
   - Damaged or cross-threaded threads
   - Damaged or worn bearings

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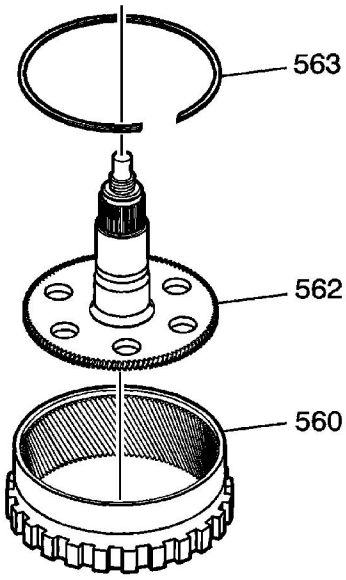
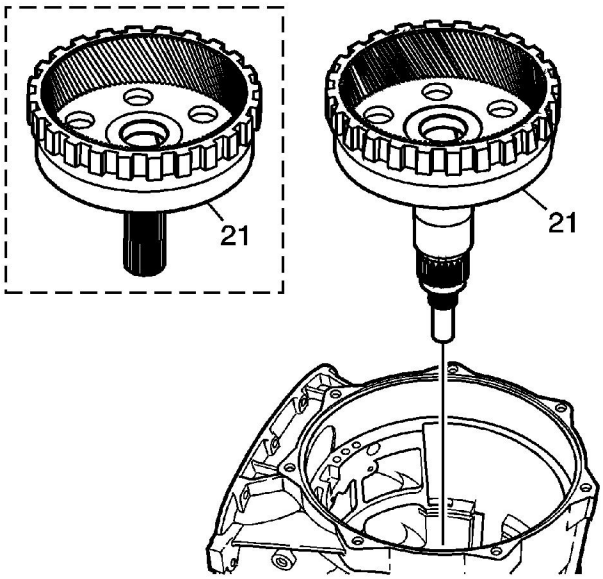
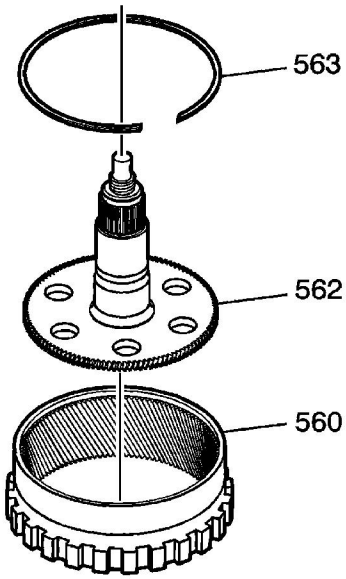


2. Install the output shaft (562) into the rear internal gear (560).
3. Install the snap ring (563) onto the rear internal ring gear (560). Be sure it is seated in the groove.



4. Rotate the transmission 90 degrees.
5. Install the ouput shaft assembly (21) into the case.

Output Shaft and Rear Internal Ring Gear Disassemble



1. Remove the snap ring (563).
2. Remove the output shaft (562) from the rear internal gear (560).

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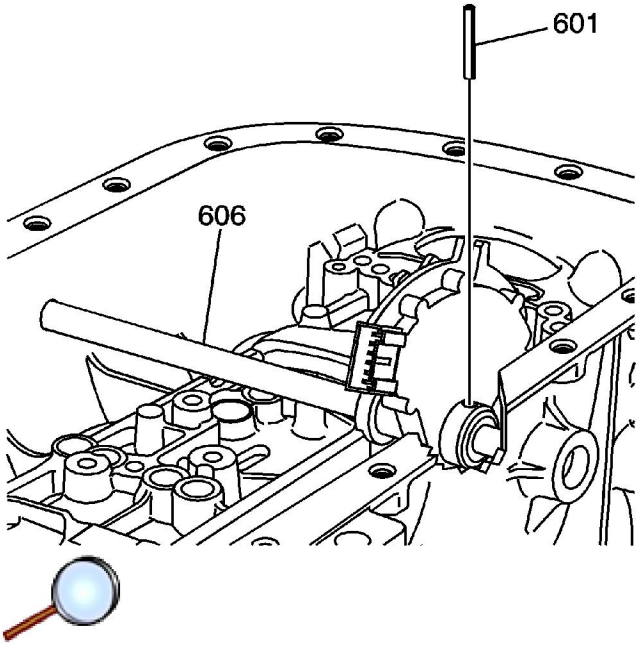
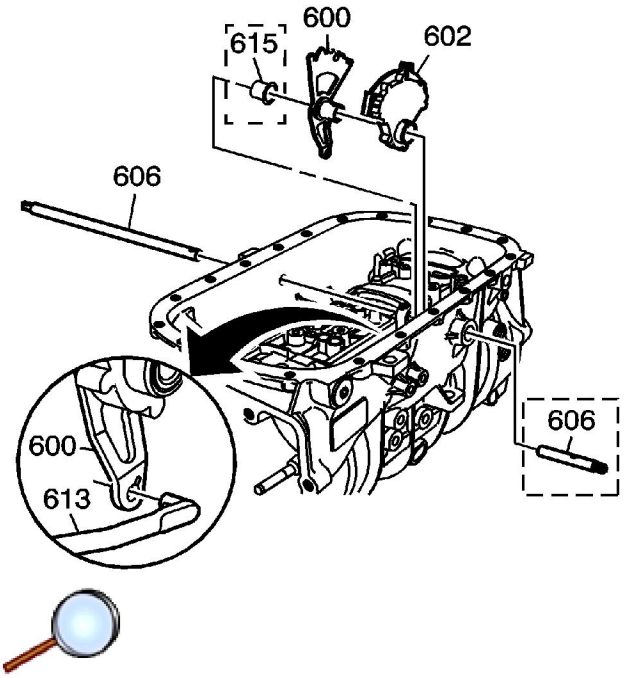
Parking System Components Removal



1. Rotate the transmission 90 degrees. Remove the shift shaft detent lever pin (601) from the case.



2. Remove the manual shift shaft (606) from the case.
3. Disconnect the park pawl actuator assembly (613) from the manual shaft detent lever (600).
4. Remove the manual shaft detent lever (600), spacer (615) - some models and the manual shaft shift switch assembly (602) from the case.

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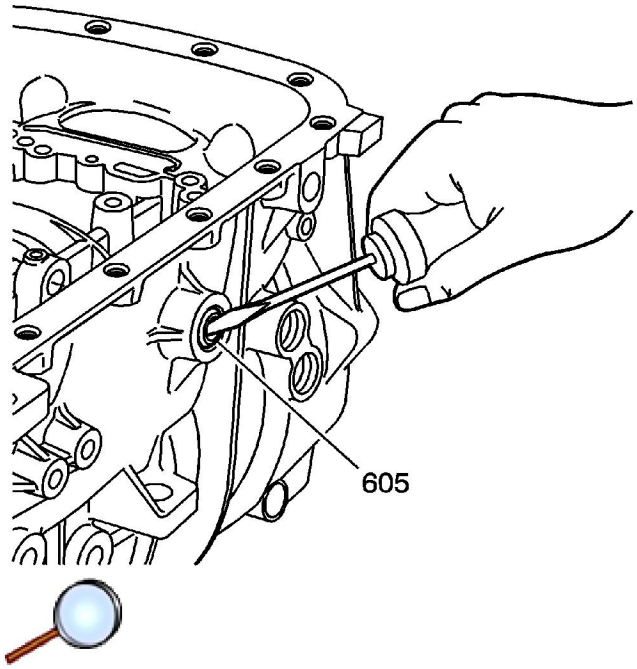
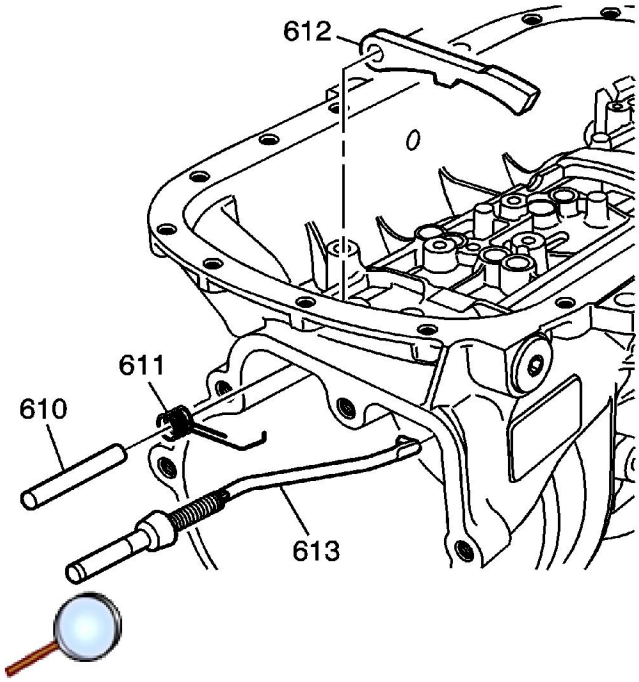
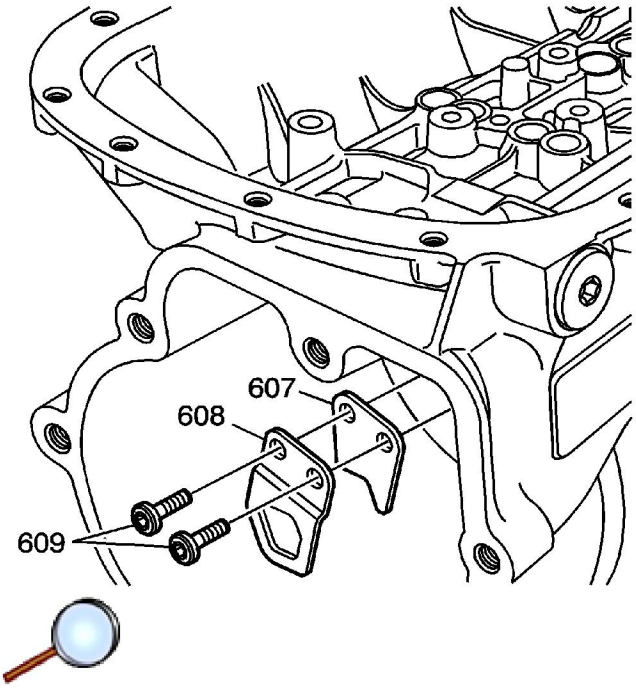


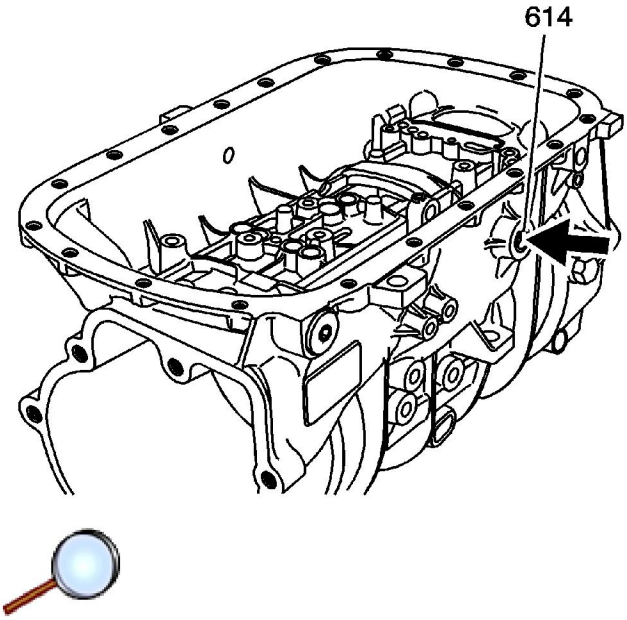
5. Use a suitable tool in order to pry the shift shaft seal (605) from the case.



6. Remove the park pawl actuator assembly (613) from the case.
7. Remove the park pawl shaft (610), park pawl spring (611) and the park pawl (612) from the case.



8. Remove the park pawl actuator bracket retaining bolts (609) from the case.
9. Remove the park pawl actuator brackets (607, 608) from the case.

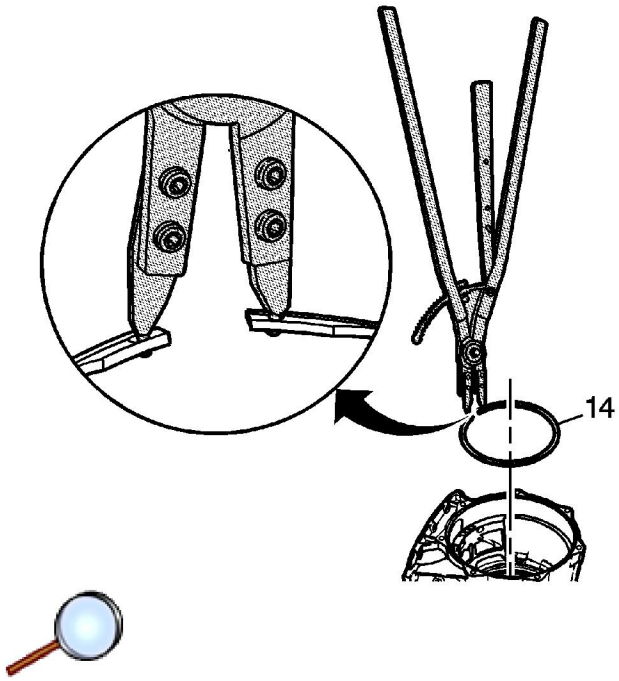


10. Inspect the cup plug (614) for signs of leaks.

Overdrive Clutch Housing Removal

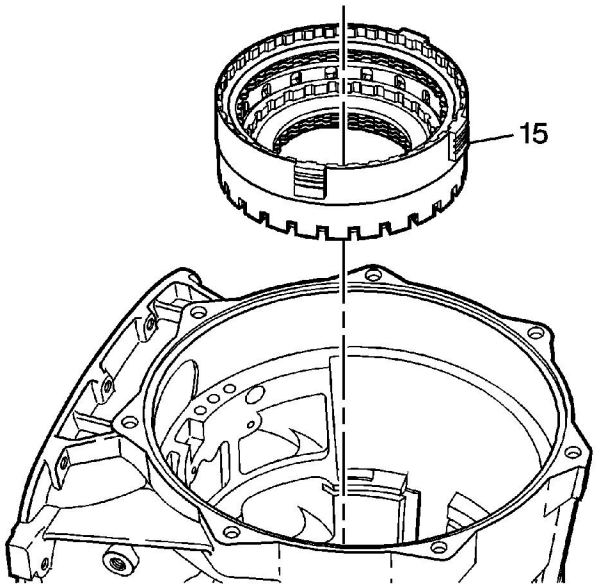
Tools Required

J 45126 Snap Ring Pliers



Caution: Use care when removing or installing the snap ring. Be sure the J 45126 snap ring pliers are installed properly onto the snap ring or bodily injury may occur.

1. Use J 45126 to remove the snap ring (14).



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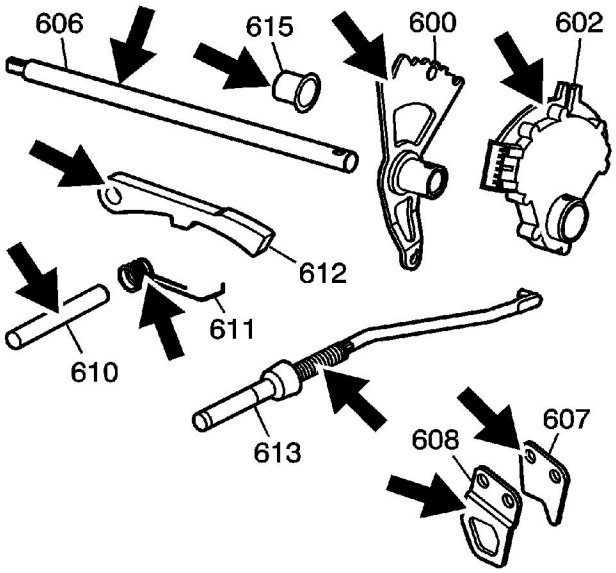
2. Remove the overdrive clutch housing (15) from the case.

Parking System Components Installation

Special Tools

J 44767 Seal Installer



1. Inspect the park system components for the following:
   - Worn park pawl actuator brackets (607 and 608)
   - A damaged or bent park pawl actuator assembly (613)
   - A damaged manual shaft detent lever (600)
   - A damaged manual shaft shift switch assembly (602)
   - A worn or stripped manual shaft (606)
   - A worn or damaged park pawl shaft (610), park pawl spring (611), and park pawl (612)
   - A worn or damaged spacer (615), - some models.

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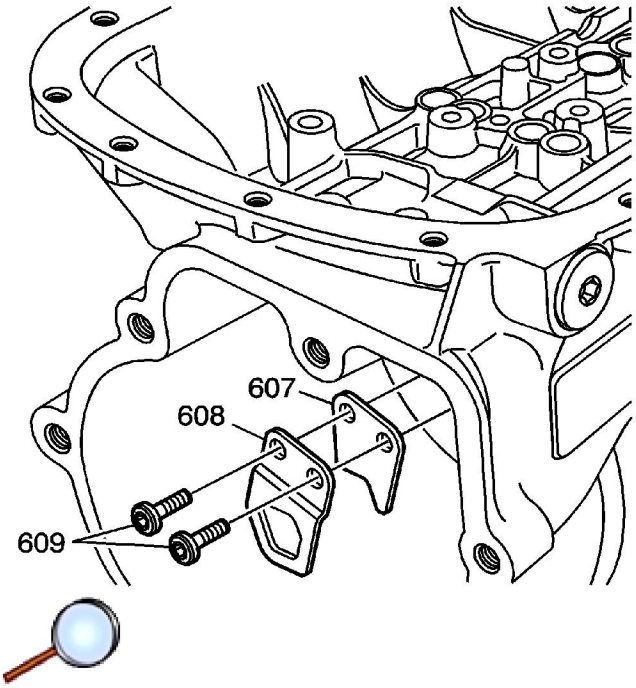
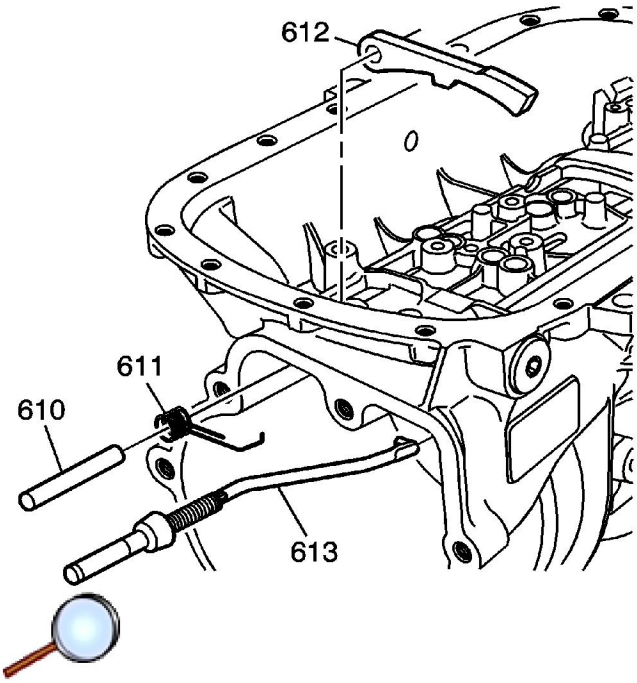


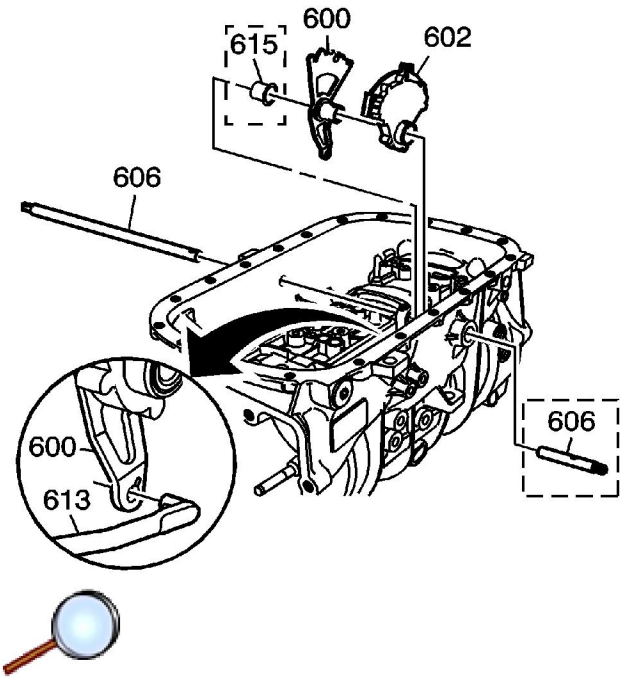
2. Install the park pawl actuator brackets (607, 608) onto the case.

Caution: Refer to Fastener Caution in the Preface section.

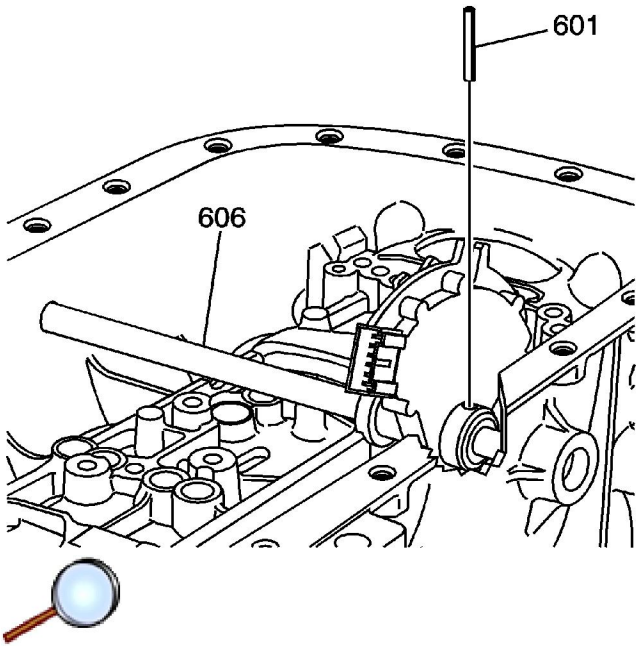
3. Install the bracket retaining bolts (609) and tighten to **22 N·m (16 lb ft)**.



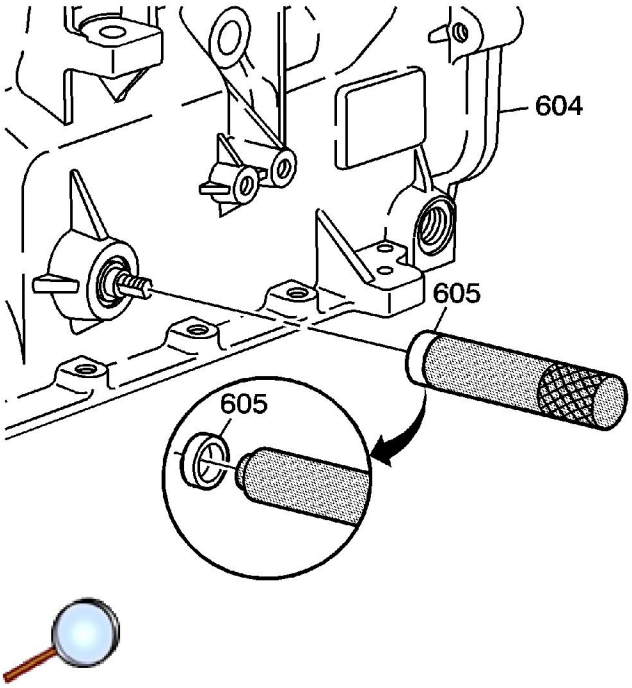
4. Install the park pawl (612), the park pawl spring (611), and the park pawl shaft (610) into the case.
5. Install the park pawl actuator (613) into the case.



6. Install the shift switch assembly (602) and spacer (615) - some models onto the detent lever (600).
7. Install the park pawl actuator (613) into the detent lever (600).
8. Install the shift shaft (606) into the case.

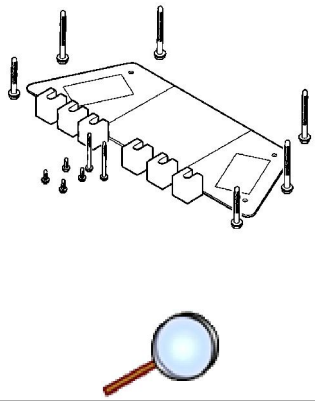
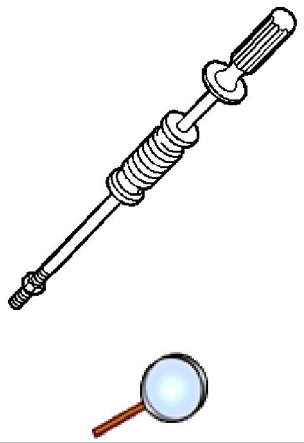
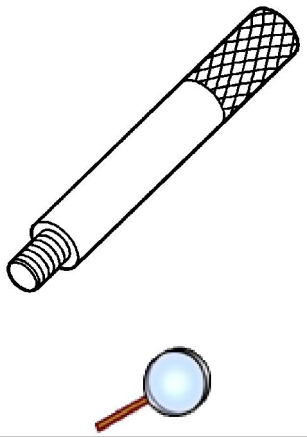


9. Align the groove for the NEW manual shaft pin (601) with the pin hole in the detent lever/shift switch assembly.
10. Install the manual shaft pin (601) into the shift shaft (606).



11. Install a NEW manual shaft seal (605) onto J 44767 .
12. Use a J 44767 to install the NEW manual shaft seal (605) into the case (604).

Special Tools

Illustration	Tool Number / Description
	EN-48536 Frame Support Tool (Engine Lower 65mm Kit)
	J 6125-1B Slide Hammer
	J 8092 Universal Driver Handle

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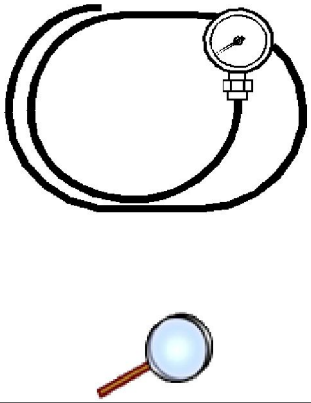
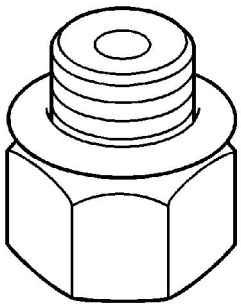
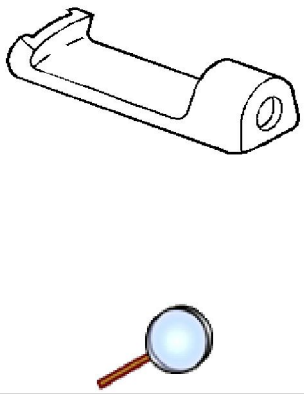
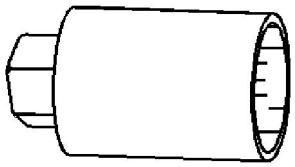
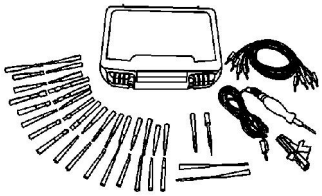
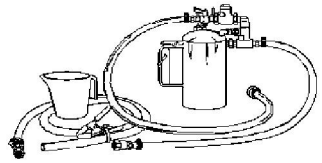
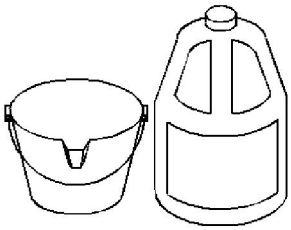
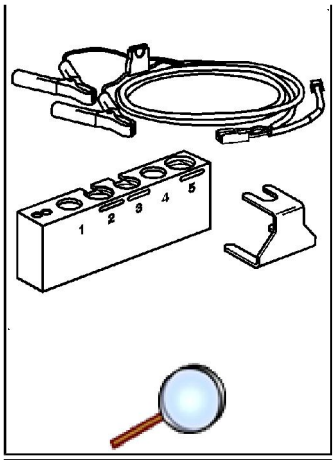
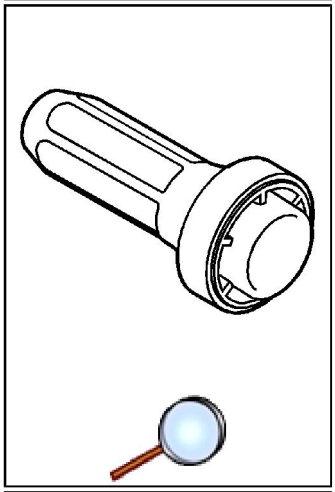
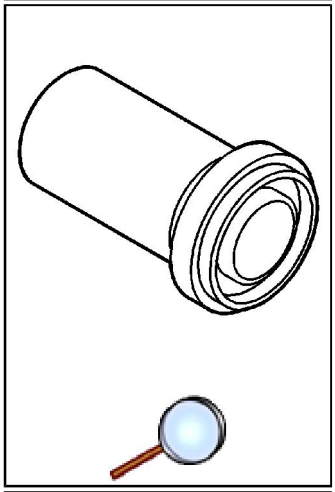
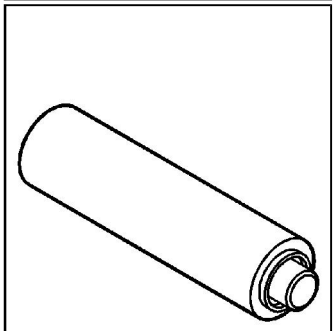
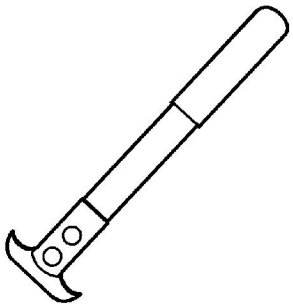
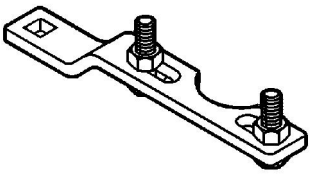
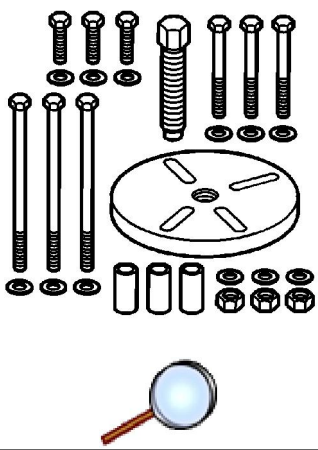
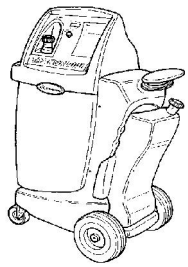
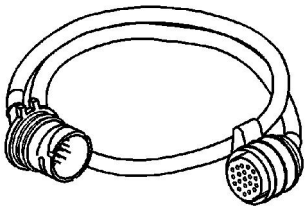
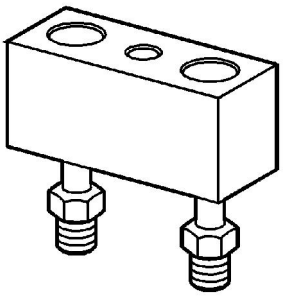
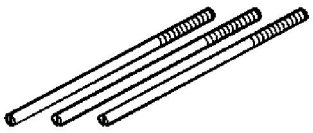
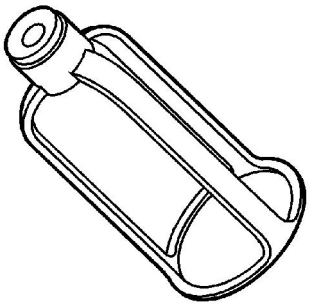
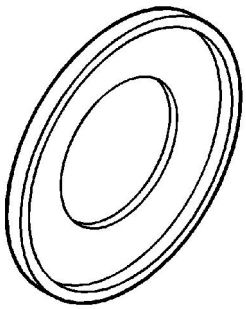
	J 21867 Pressure Gage
	J 21867-L40 Pressure Gage Adapter
	J 23129 Universal Seal Remover
	J 29873 Injector Nozzle Socket 30 mm

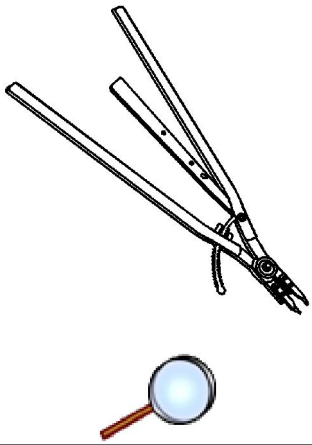
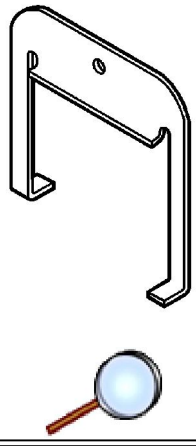
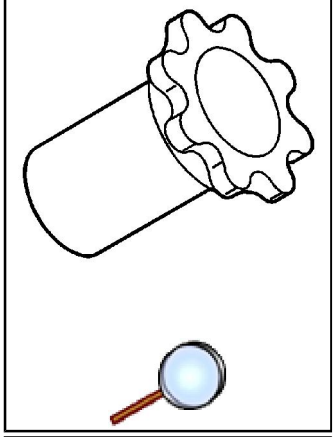
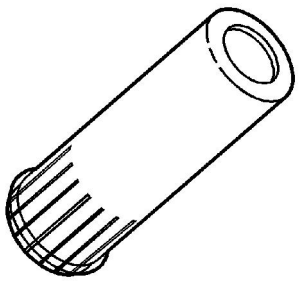
	J 35616-B Terminal Test Kit
	J 35944-A Transmission Oil Cooler and Line Flusher
	J 35944-22 Transmission Oil Cooler Flushing Fluid

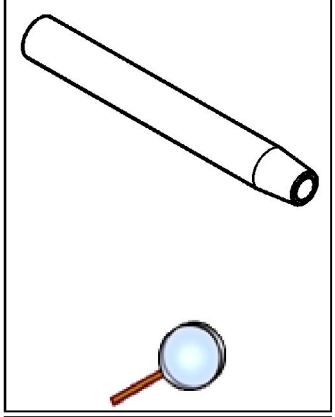
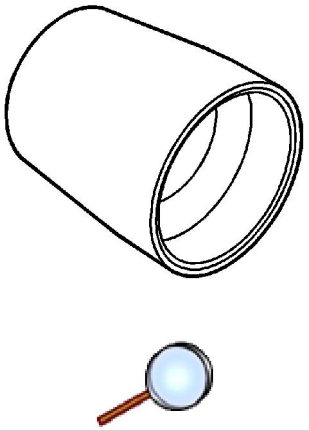
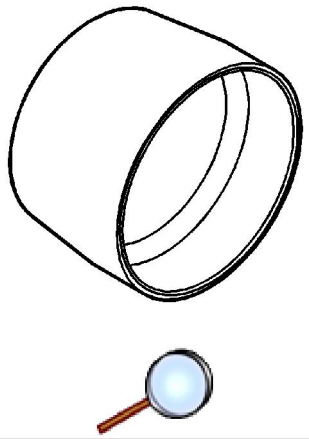
	J 44246 Solenoid Testing Kit
	J 44765 Seal Installer
	J 44766 Seal Installer
	J 44767 Seal Installer

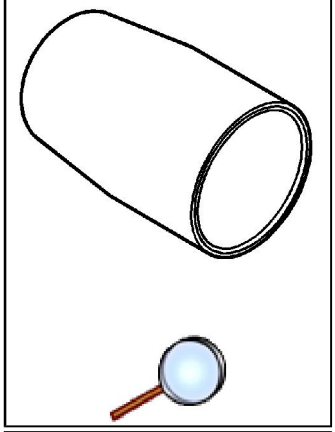
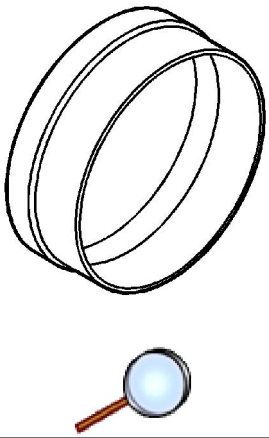
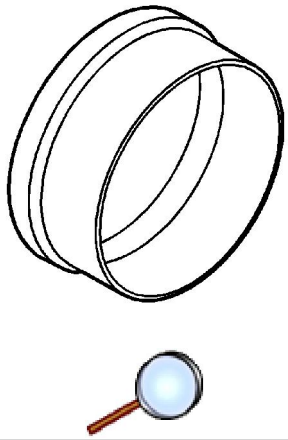
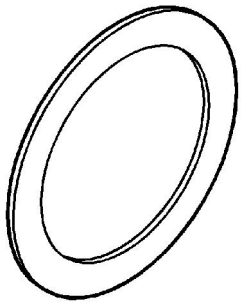
	J 44827 Transmission Cooler Quick Disconnect
	J 45000 Seal Remover
	J 45012 Holding Fixture

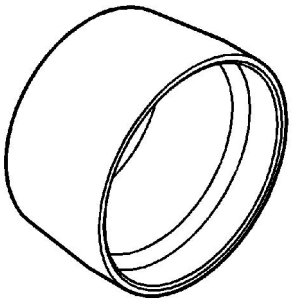
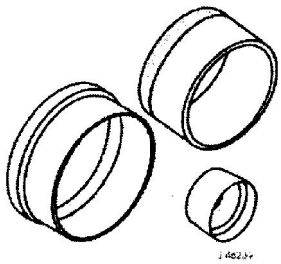
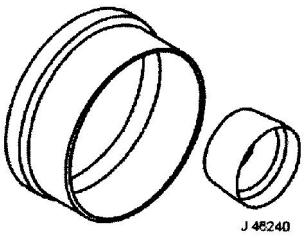
	J 45019 Universal Puller
	J 45096 Transmission Oil Cooling System Flush and Flow Test Tool
	J 45681 Jumper Harness
	J 45806 Cooler Flushing Adapter

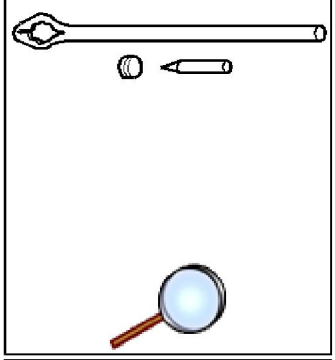
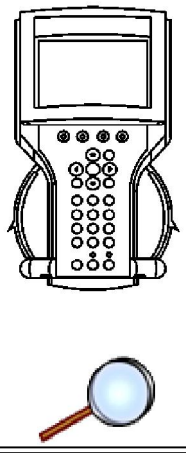
	J 39068 Valve Body Guide Pins
	J 43074 Clutch Spring Compressor
	J 44764 Clutch Spring Compressor

	J 45126 Snap Ring Pliers
	J 45127 Centre Support Removal Tool
	J 45130-1 Seal Installer Pusher
	J 45130-2 Seal Protector

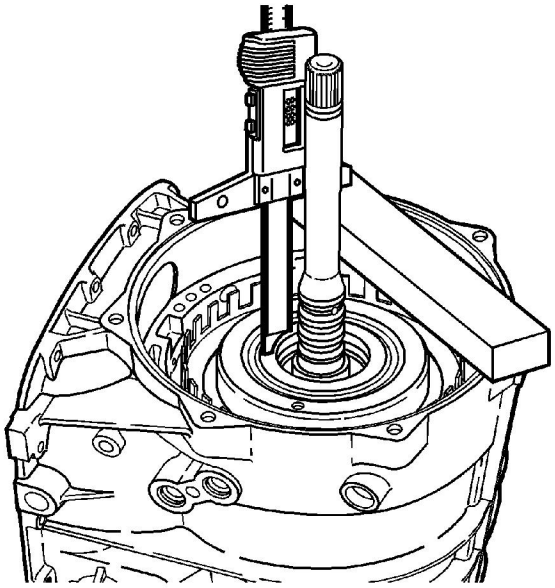
	J 45130-3 Seal Installer Sizer
	J 45132 Seal Protector
	J 45133 Seal Protector

	J 45134 Seal Protector
	J 45135 Seal Protector
	J 45136 Seal Protector
	J 45139 Compressor Plate

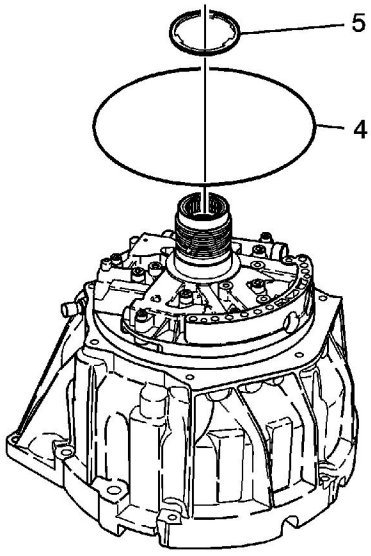
	J 45140 Seal Protector
	J 46239 Comprises of three individual components J-46239-1, J-46239-2 and J-46239-3 Piston Seal Protector
	J 46240 Comprises of two individual components J-46240-1 and J-46240-2 Seal Protector

	J 8614-01 Seal Protector
	7000086I Scan Tool Used for diagnosis of vehicle electrical system.

Torque Converter Housing Installation



1. Measure the distance from the bottom of the gage bar to the top of the direct and reverse clutch assembly (6). Record this as dimension X. Refer to the Reverse Clutch Housing Selective Thrust Washer Specifications to determine the correct size to use.



2. Use lubricant to install the NEW torque converter fluid seal (4) onto the torque converter housing.

   Use lubricant to install the reverse clutch housing thrust washer (5).

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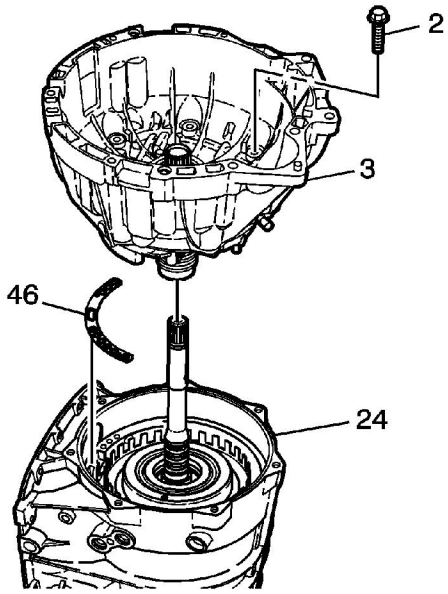
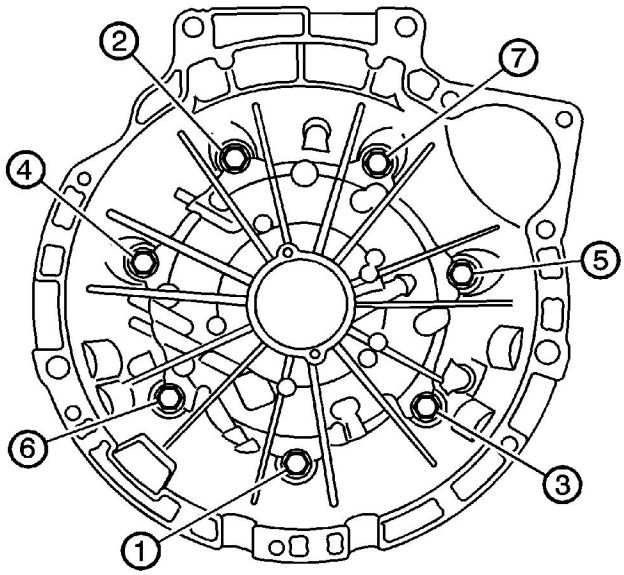


3. Install the NEW fluid pump cover gasket (46).
4. Install the torque converter housing (3) onto the case (24).
5. Install the torque converter housing retaining bolts (2) and hand tighten.

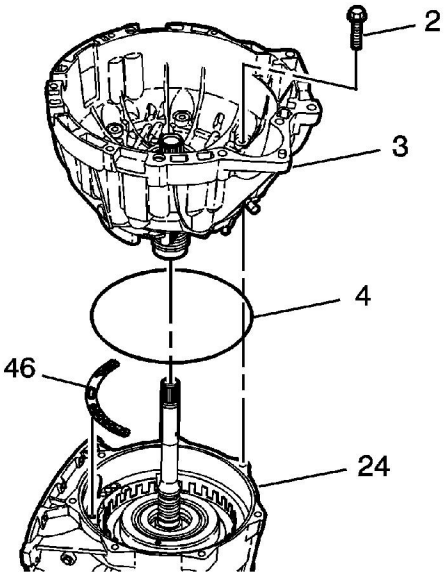
Caution: Refer to Fastener Caution in the Preface section.



6. Tighten the torque converter housing retaining bolts in sequence to **22 N·m (16 lb ft)**.

Torque Converter Housing Removal

1. Remove the transmission. Refer to Transmission Replacement.



2. Rotate the transmission 90 degrees so that the converter housing is facing up. Remove the torque converter housing bolts (2) from the torque converter housing (3).
3. Remove the torque converter housing assembly (3) from the case (24).
4. Remove the torque converter housing fluid seal assembly (4).
5. Remove the fluid pump cover gasket (46).

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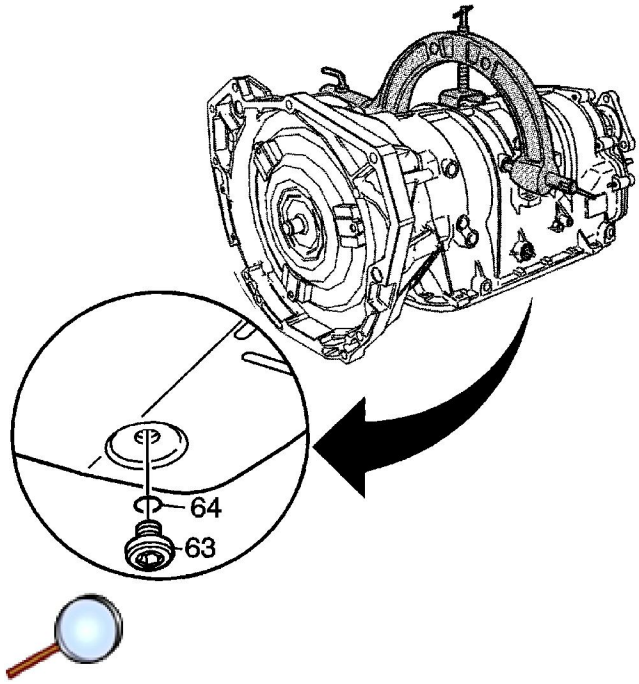
Transmission Fluid Draining

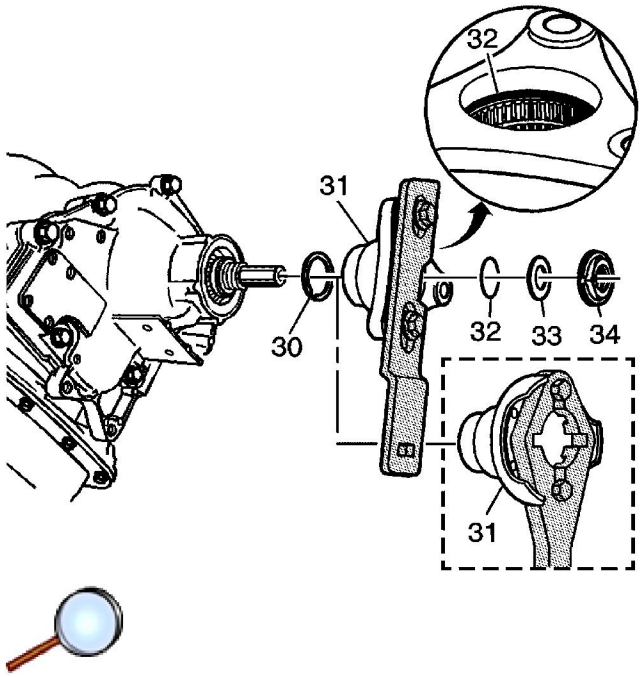
Tools Required

J 45012 Holding Fixture

1. Place a suitable drain tray under the transmission.



2. Remove the fluid pan drain plug (63) and seal (64), and allow the transmission fluid to drain.



3. Put transmission in park.

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4. Install either the J 45012 to hold the drive flange.

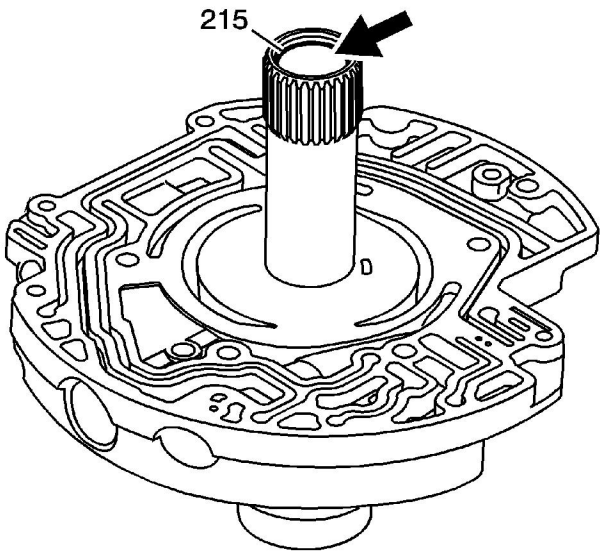
   Important: Discard retainer (30), seal (32), washer (33) and nut (34).

5. Remove the drive flange retaining nut (34).
6. Remove the drive flange washer (33) and seal (32).
7. Remove the drive flange (31) and the output shaft assembly retainer (30).
8. Slowly rotate the transmission to a vertical position, with the bell housing facing up, and allow any excess fluid to drain.

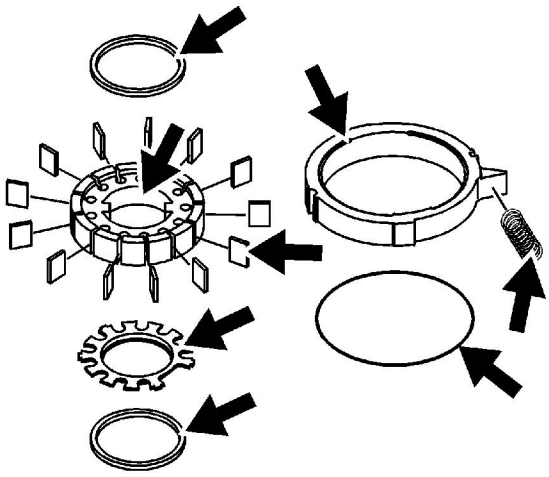
Transmission Fluid Pump Assemble

Special Tools

J 21368 Pump Body Cover Alignment Band



1. Inspect the fluid pump bushing (215) for wear - not serviceable.



2. Inspect the fluid pump parts for the following:

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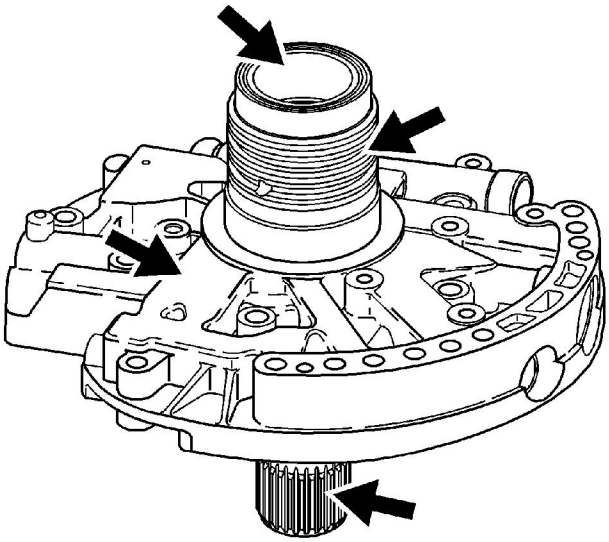
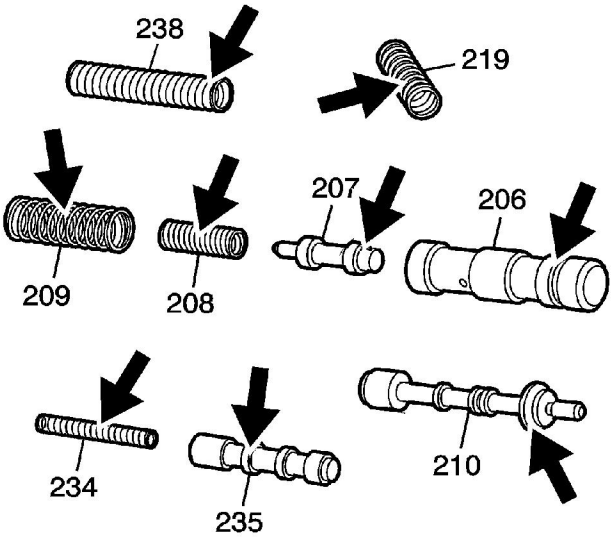
- Worn, scored, or gouged pump slide
- Cracks, wear, or damage to the rotor or vanes
- Cuts or damage to the seals
- Broken priming springs

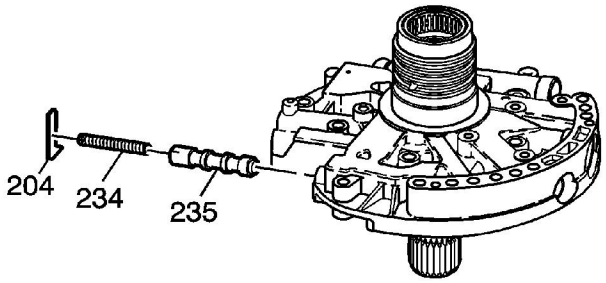


3. Inspect the fluid pump housing for the following:
   - Porosity
   - Interconnected oil passages
   - Damaged machined surfaces

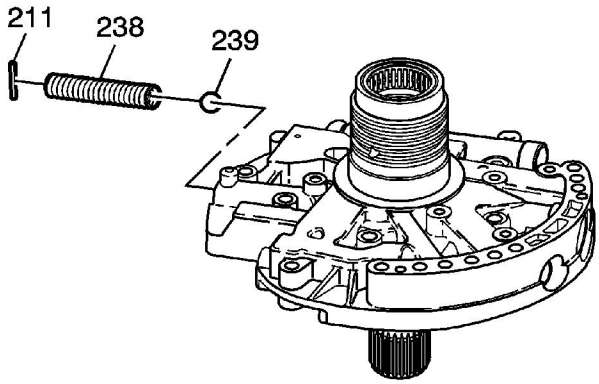


4. Inspect the valves (207, 210, 235) and springs (208, 209, 234, 238, 219) for the following:

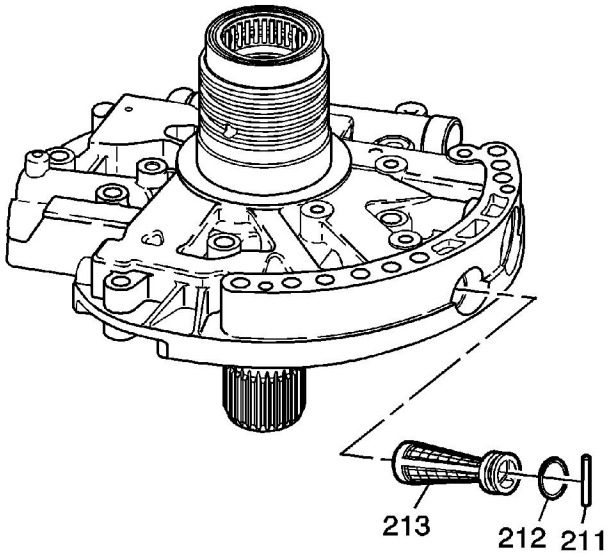
- Nicks or burrs on the valves
- Worn, distorted, or cracked springs



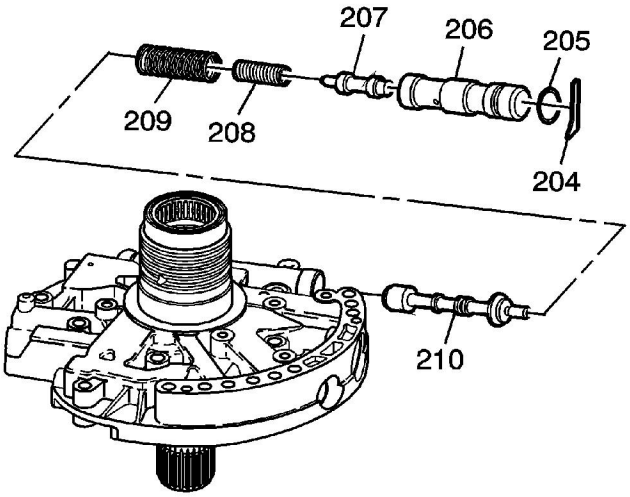
5. Install the TCC control valve (235) and the TCC control valve spring (234).
6. Install the TCC control valve spring retainer (204).



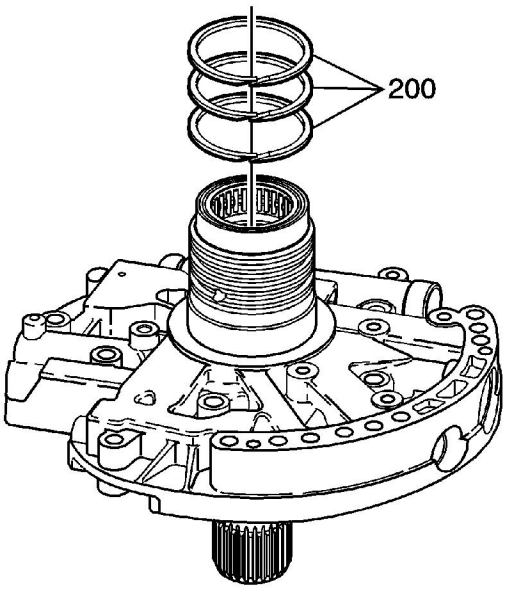
7. Install the pressure relief ball (239) and spring (238).
8. Install the pressure valve spring retainer (211).



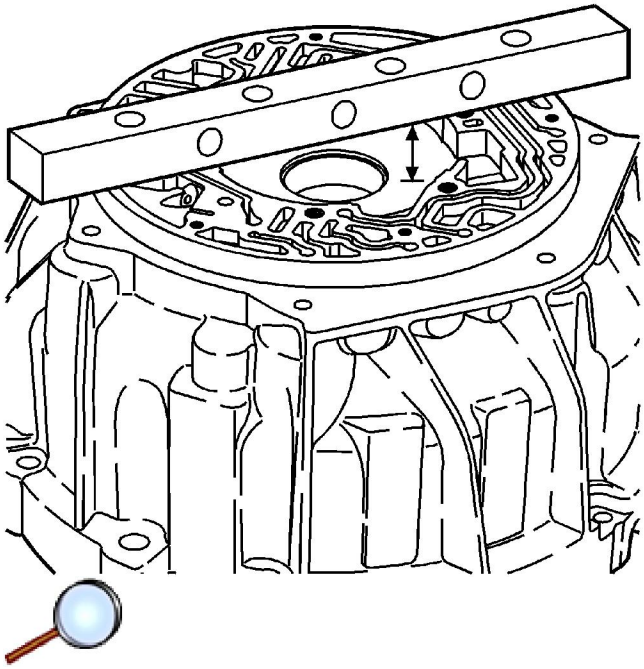
9. Install the fluid pump cover seal (212) onto the new pump cover screen (213).
10. Install the fluid pump cover screen (213).
11. Install the fluid pump cover screen pin (211).



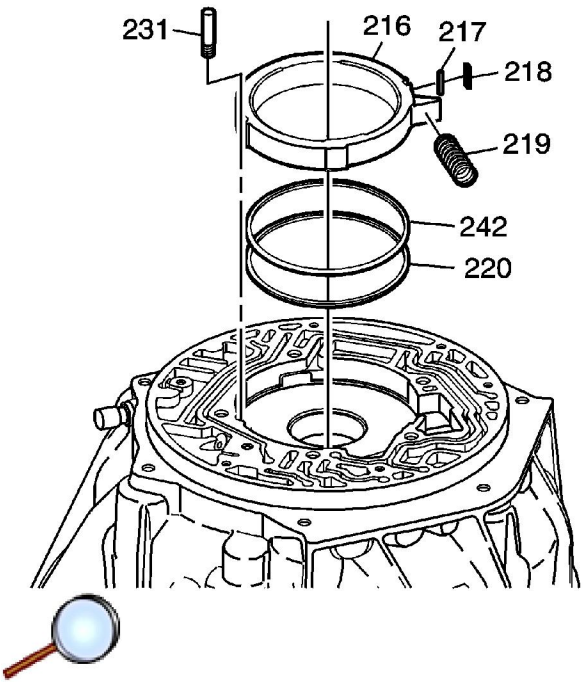
12. Install the pressure regulator valve (210), the pressure regulator valve spring (209), and the line boost valve spring (208).
13. Install the line boost valve bushing seal (205) onto the bushing (206).
14. Install the line boost valve (207) and the bushing (206).
15. Install the line boost valve bushing retainer (204).



16. Install the reverse clutch housing fluid seal rings (200).



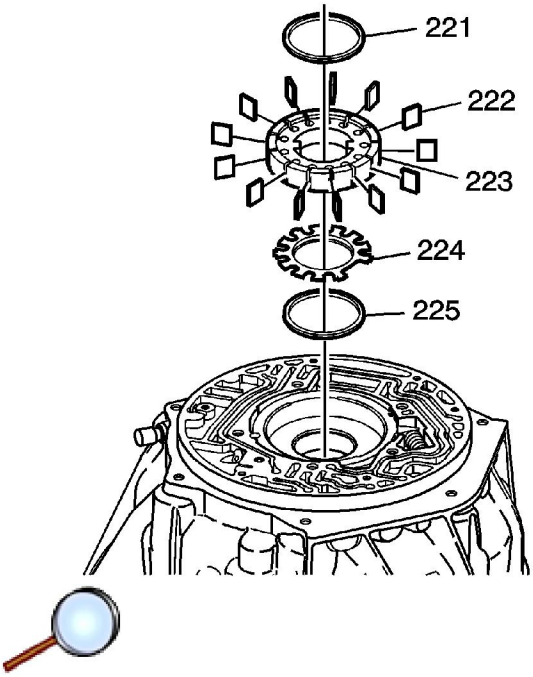
17. Measure the distance from the bottom of the gage bar to the fluid pump body. Refer to Transmission Fluid Pump Specifications.
18. Measure the thickness of pump slide (216).
19. Select the correct size. Refer to Transmission Fluid Pump Specifications.
20. Measure the thickness of the pump rotor (223).
21. Select the correct size rotor. Refer to Transmission Fluid Pump Specifications.



22. Install the fluid pump support (217), the slide seal (218) and the fluid pump slide rings (220), and the fluid pump slide O-ring seal (242) onto the pump slide (216).
23. Install the slide pin (231).

Note: The fluid pump slide (216) is selective.

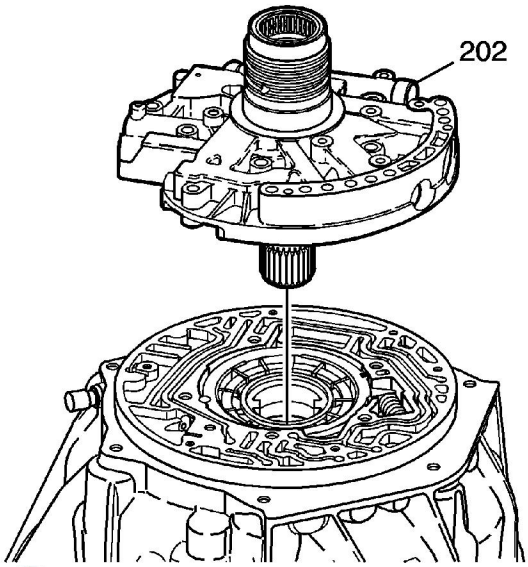
24. Install the fluid pump slide (216).
25. Using a suitable tool install the slide spring (219).



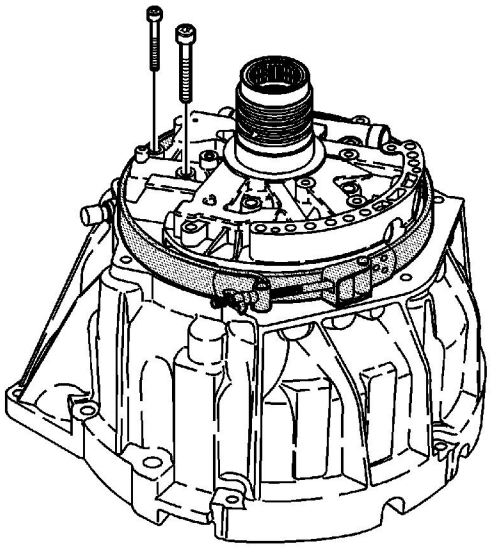
26. Install the fluid pump vane ring (225).
27. Install the fluid pump rotor guide (224).

Note: The fluid pump rotor (223) is selective.

28. Install the fluid pump rotor (223).
29. Install the fluid pump vanes (222).
30. Install the fluid pump vane ring (221).

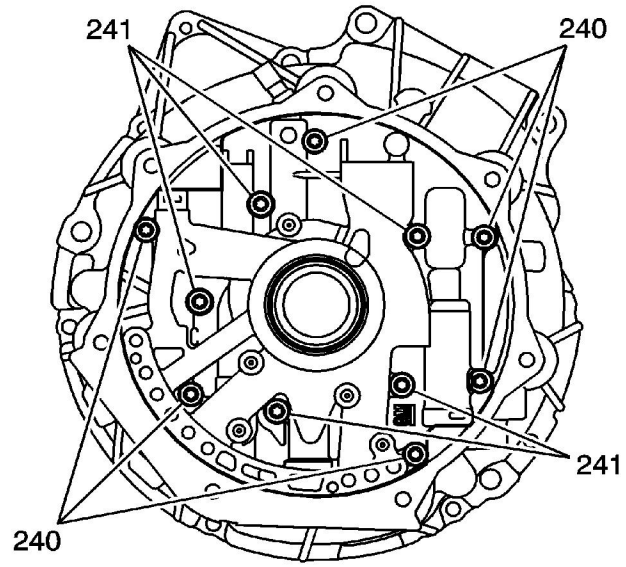


31. Install the fluid pump cover housing (202) onto the converter housing (224).



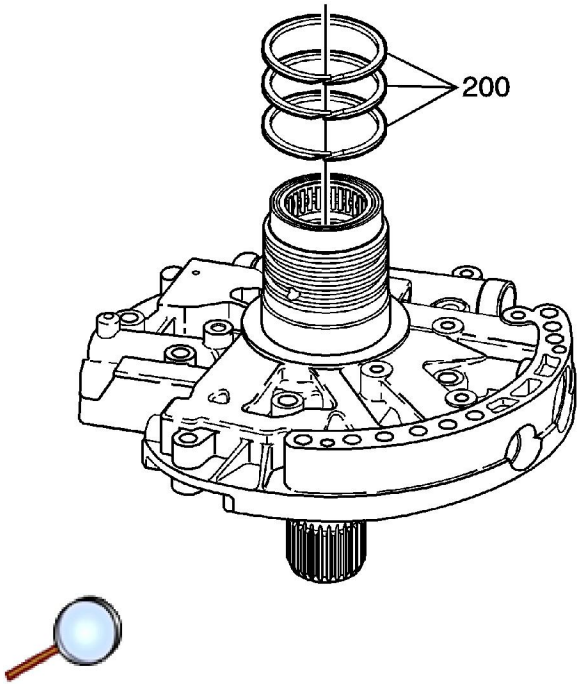
32. Install J 21368 and tighten.

Caution: Refer to Fastener Caution in the Preface section.

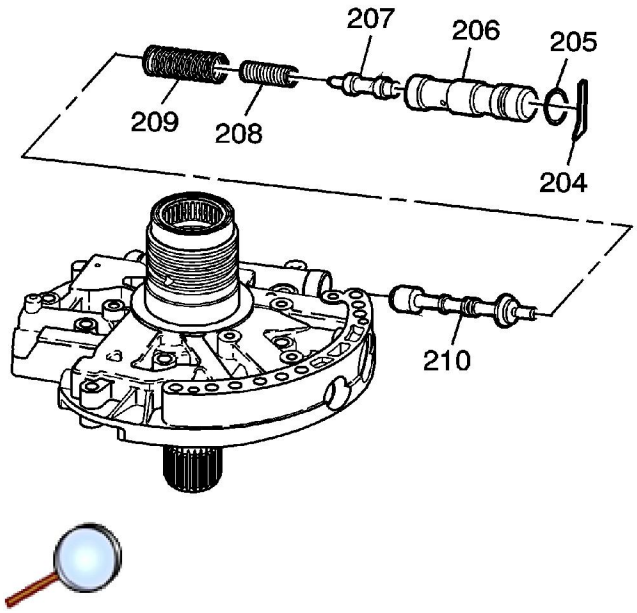


33. Install the fluid pump housing retaining bolts (240, 241). Tighten the bolts (240) to **11 N·m (8 lb ft)** and bolts (241) to **22 N·m (16 lb ft)**.
34. Remove J 21368 .

Transmission Fluid Pump Disassemble



1. Remove the reverse clutch housing seal rings (200).



2. Remove the line boost valve retainer (204).
3. Remove the line boost valve bushing (206) and the line boost valve (207).
4. Remove the line boost valve bushing seal (205).
5. Remove the line boost valve spring (208) and the pressure regulator valve spring (209).
6. Remove the pressure regulator valve (210).

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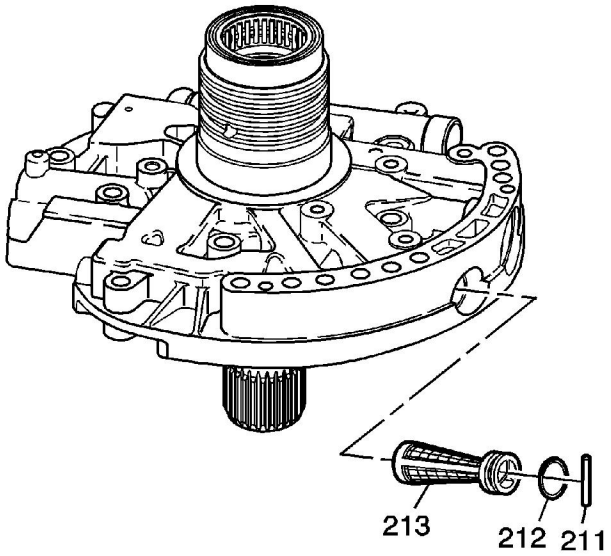
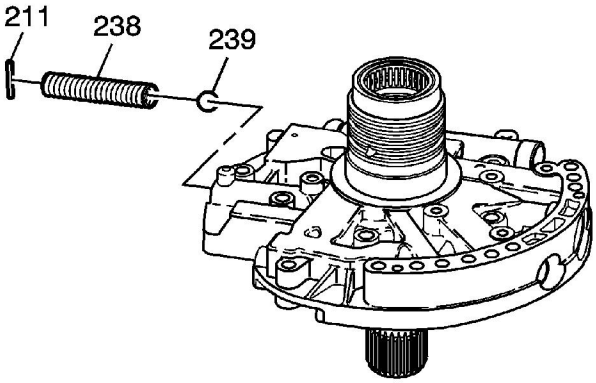
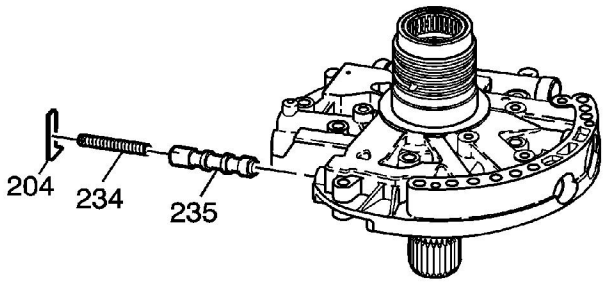


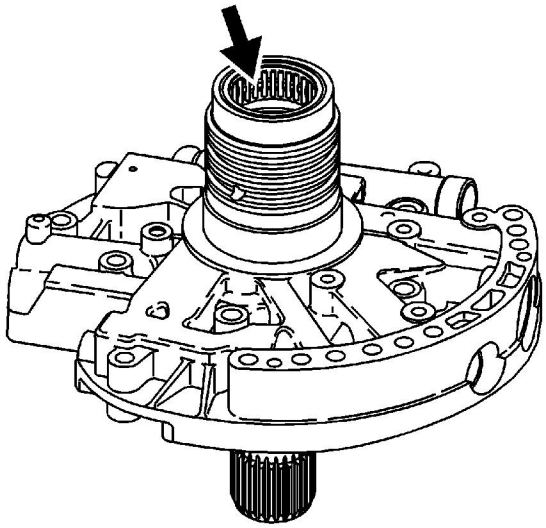
7. Remove the fluid pump cover screen pin (211).
8. Remove the fluid pump cover screen (213).
9. Remove the fluid pump cover seal (212).



10. Remove the pressure relief ball pin (211).
11. Remove the pressure relief spring (238) and the pressure relief ball (239).

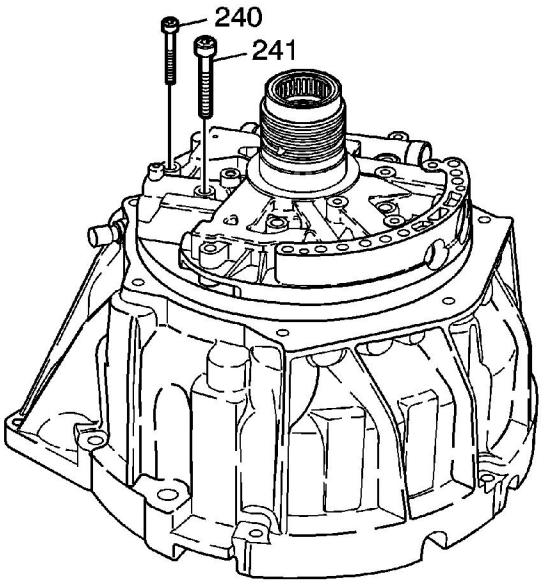


12. Remove the torque converter clutch (TCC) control valve pin (204).
13. Remove the TCC control valve spring (234) and the TCC control valve (235).

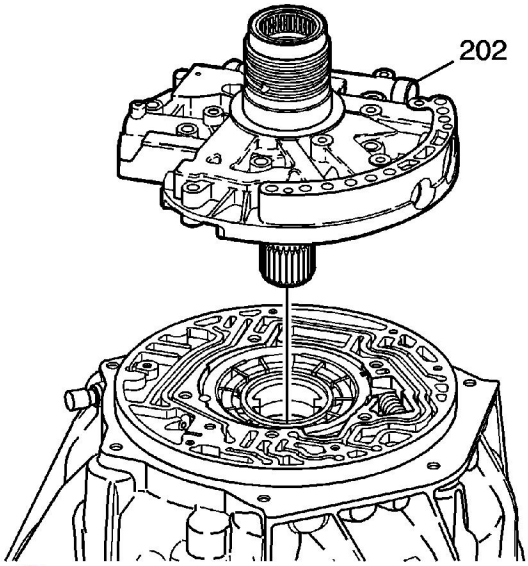


14. Inspect the input shaft bearing (201) for the following:
    - Damaged bearing cage
    - Pitted bearings
    - Scored bearings

Transmission Fluid Pump Removal



1. Remove the fluid pump to torque converter housing bolts (240, 241).



2. Remove the fluid pump cover (202).

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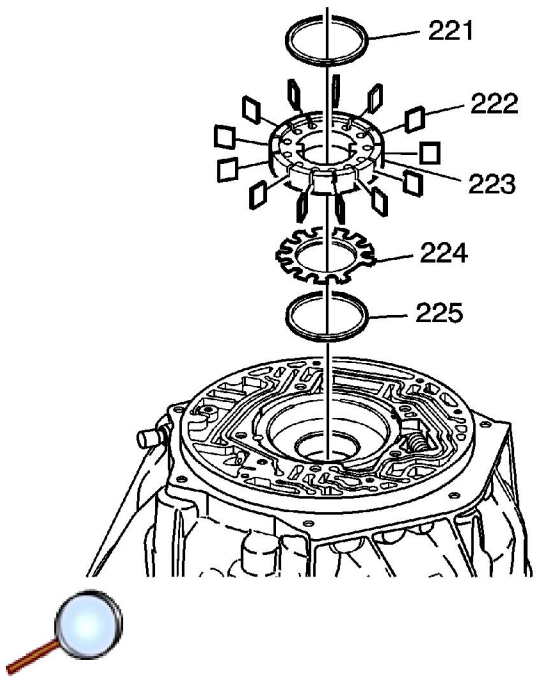
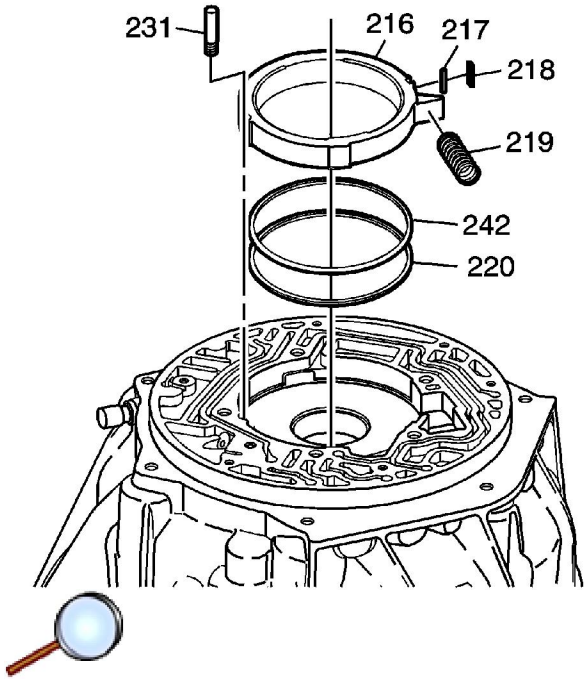
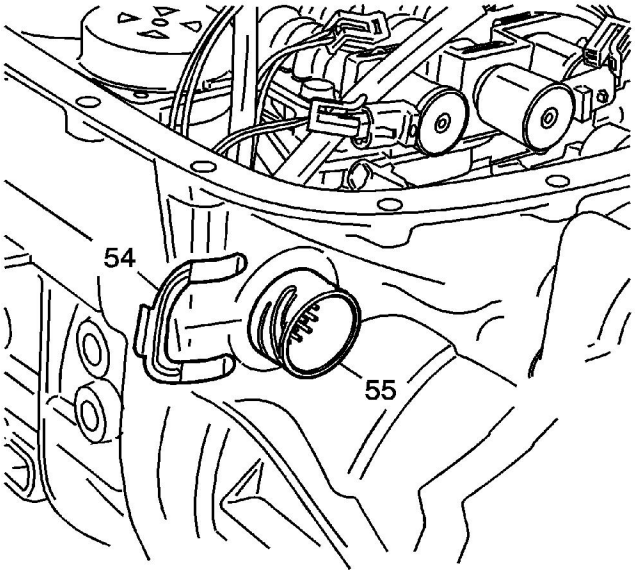


3. Remove the fluid pump vane ring (221).
4. Remove the fluid pump vanes (222).
5. Remove the fluid pump rotor (223).
6. Remove the fluid pump rotor guide (224).
7. Remove the fluid pump vane ring (225).

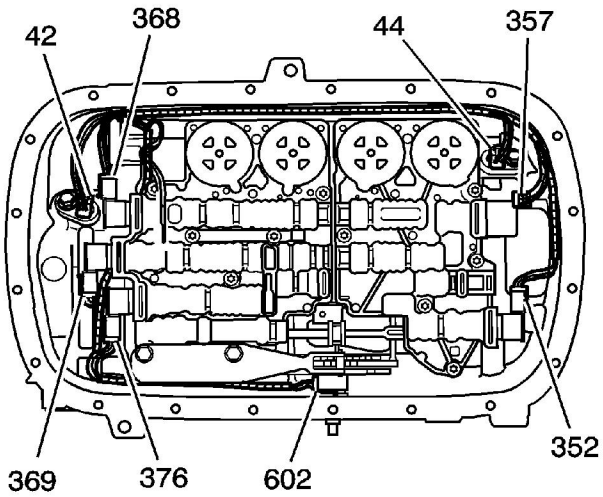


8. Remove the fluid pump slide spring (219).
9. Remove the fluid pump slide (216).
10. Remove the fluid pump slide pin (231).
11. Remove the fluid pump slide ring (220, 242).
12. Remove the fluid pump support (217) and the fluid pump slide seal (218).

Wiring Harness Installation



1. Install the wiring harness connector (55) through the case. Hold the connector and install the wiring harness connector retainer (54).



2. Install the wiring harness to the valve body and connect the following components:
   - Pressure Control Solenoid (357)
   - TCC PWM Solenoid (352)
   - 1-2 Shift Solenoid (368)

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- 2-3 Shift Solenoid (369)
- 4-5 Shift Solenoid (376)
- Internal Mode Switch - IMS (602)
- Input Speed Sensor (44)
- Output Speed Sensor (42)